

1999

**BMW E36 Coupe
and Convertible
318is/C, 323is/C,
328is/C, M3**

**Electrical
Troubleshooting
Manual**

Vehicles produced 9/98 to 8/99



ELECTRICAL TROUBLESHOOTING MANUAL

SERIES 3 – E36 (318i, 323i, 328i, M3, COUPE AND CONVERTIBLE)

SCHEMATICS

MODEL YEAR 1999

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SIDE IMPACT SENSOR, PASSENGER'S, B79 3234.0-01



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Schematics

The schematics divide the entire vehicle electrical system into individual circuits. Interacting electrical components are shown on one common schematic.

Switches and other components are represented in such a way that their general layout and function are self-explicit. They are arranged on the sheet such that the current path can be followed from positive (top) to negative (bottom).

Important: The components and wires are not drawn to scale. For instance, a lead with a length of over 1m can be shown as a lead that is only a few cm long. To ensure clear arrangement, all connectors, line branches and connected components from the fuses to the component and from the component to ground connection are not shown within the individual cells. If required, reference can be made to cells **0670.3 Fuse Details** and **0670.4 Ground Distribution** where all lines are illustrated with all plug connections, line branches and connected components.

All circuit symbols used are listed and explained in cell **0140.0 Symbols**.

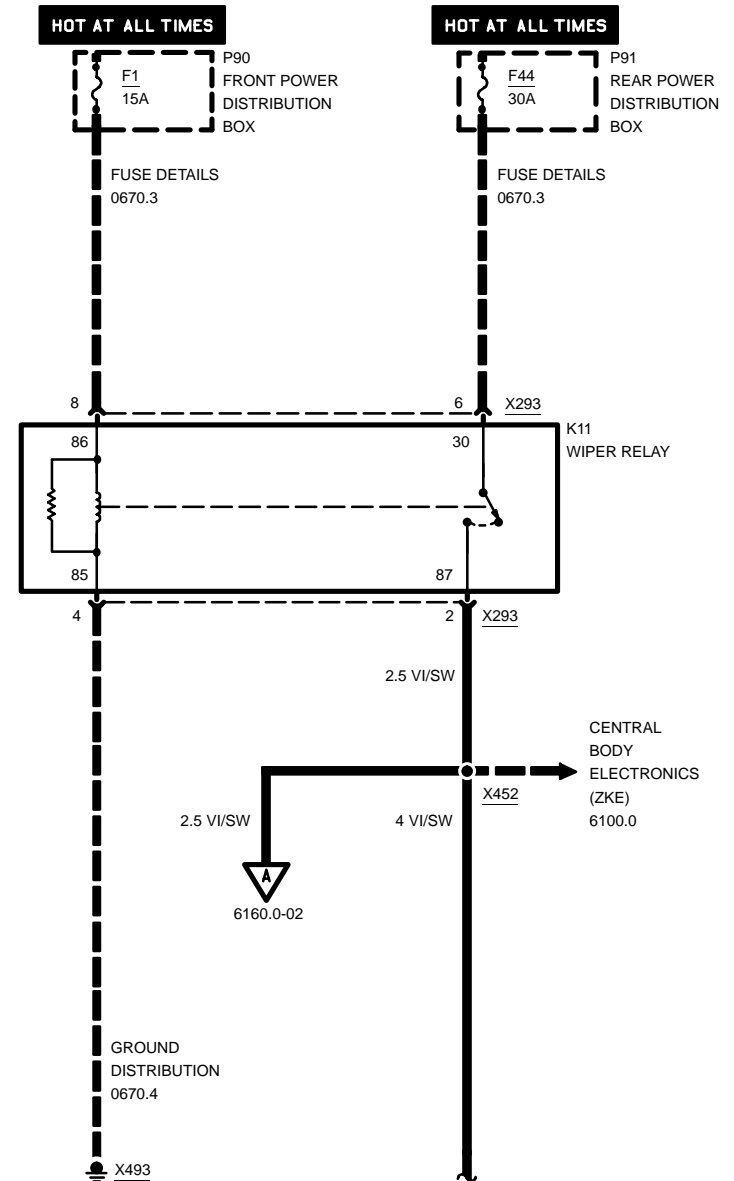
In cell **7000.0 Component Location Chart** all important connectors, ground points and components are listed in tabular form. It provides a precise description of the component locations in the vehicle.

In cell **7100.0 Component Location Views** the location of connectors and components which are difficult to locate are shown in line arts or illustrations. In cell **8000.0 Splice Location Views** all splices are listed in numerical order and illustrations are provided to assist in locating splices on larger harnesses. In cell **8500.0 Connector Views** diagrams of connectors with more than 2 pins are illustrated.

Included in this ETM are foldout block diagrams. These are overviews of the entire system (EGS, ABS, AC, etc.) which helps understand the relationships between various components and control unit of the system being diagnosed.

Example

General conventions can be explained based on the following schematic example.





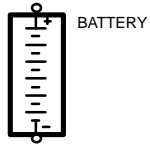
INTRODUCTION

General Conventions

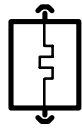
1. Switches and relays are always shown in rest position (e.g. K11).
2. A component shown in a dashed frame signifies that the component is illustrated only in part (e.g. P90 and P91).
3. A component shown in a completely drawn frame signifies that the component is illustrated in full (e.g. K11).
4. The dashed line between pin 8 and pin 6 of connector X293 indicates that both pins belong to connector X293.
5. The dashed line from fuse F1 to pin 8 of connector X293 shows the positive supply of relay K11. If required, refer to cell **0670.3 Fuse Details** at fuse F1 for the complete line progressing with plug connections, line branches, wire colors and cross sections.
6. The dashed line with an arrow at splice X452 indicates that several wires lead to splice X452. All lines leading to the connection are illustrated in cell **6100.0 Central Body Electronics (ZKE)**. An interrupted line with an arrow indicates that only this one wire leads to another circuit.
7. The dashed line from pin 4 of connector X293 to ground X493 shows the ground supply for relay K11. If required, refer to cell **0670.4 Ground Distribution** at ground X493 for the complete line progression with all plug connections, line branches, wire colors, and cross sections.
8. The interrupted line from splice X452 with an **A** in the open arrow is continued on page 6160.0-02. Termination of wire 4 VI/SW from splice X452 with a wavy line indicates that the wire is continued on the opposite page.



0140.0 SYMBOLS



BATTERY



HEATING ELEMENT



VARIABLE RESISTANCE SENSOR
VARIABLE CONTACT IS MOVED BY AN EXTERNAL FORCE



ANTENNA



FUSE DETAILS



LOUDSPEAKER OR HORN



VARIABLE RESISTOR
RESISTANCE IS CHANGED BY TEMPERATURE OR PRESSURE



CONTROL/POWER ELECTRONICS



FUSIBLE LINK



LIGHT



DIODE CURRENT CAN FLOW ONLY IN DIRECTION OF ARROW



HALL EFFECT SENSOR



RADIO



CIRCUIT BREAKER



PERMANENT MAGNET MOTOR ONE SPEED



ZENER DIODE TO REGULATE VOLTAGE



TRANSISTORIZED SWITCH



THERMO SWITCH



PERMANENT MAGNET MOTOR TWO SPEEDS



LIGHT EMITTING DIODE (LED)



INDUCTIVE SENSOR



SOLENOID



KNOCK SENSOR



OXYGEN SENSOR



VEHICLE SPEED SENSOR

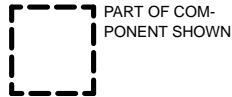
SOLENOID CONTROLLED VALVE OR CLUTCH SOLENOID



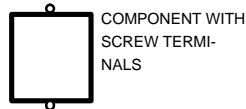
SYMBOLS



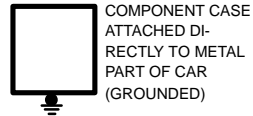
ENTIRE COM-
PONENT SHOWN



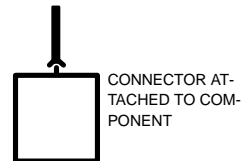
PART OF COM-
PONENT SHOWN



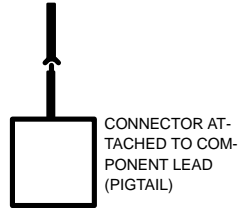
COMPONENT WITH
SCREW TERMI-
NALS



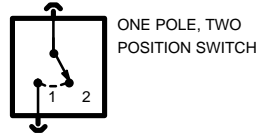
COMPONENT CASE
ATTACHED DI-
RECTLY TO METAL
PART OF CAR
(GROUNDED)



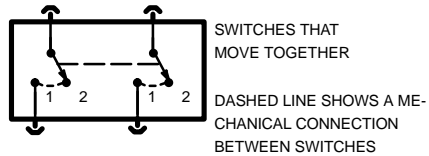
CONNECTOR AT-
TACHED TO COM-
PONENT



CONNECTOR AT-
TACHED TO COM-
PONENT LEAD
(PIGTAIL)



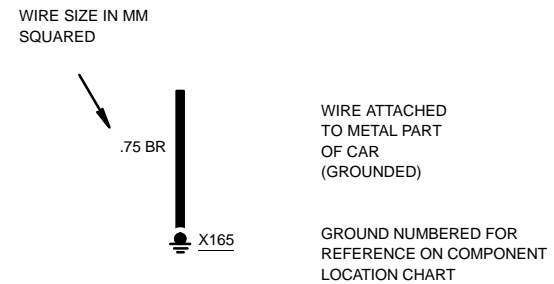
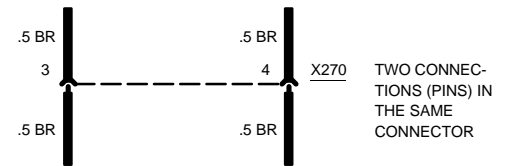
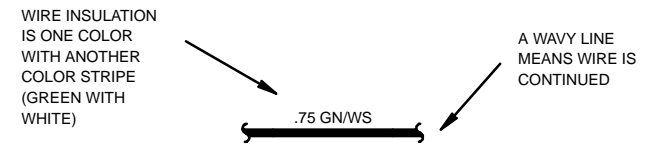
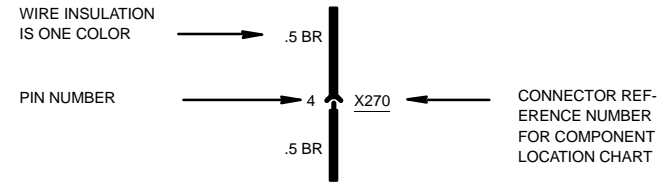
ONE POLE, TWO
POSITION SWITCH



SWITCHES THAT
MOVE TOGETHER

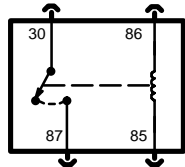
DASHED LINE SHOWS A ME-
CHANICAL CONNECTION
BETWEEN SWITCHES

WIRE COLOR	
BL	BLUE
BR	BROWN
GE	YELLOW
GN	GREEN
GR	GRAY
OR	ORANGE
RS	PINK
RT	RED
SW	BLACK
VI	VIOLET
WS	WHITE
TR	TRANSPARENT

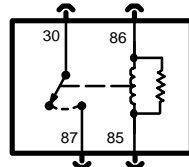




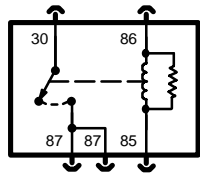
SYMBOLS



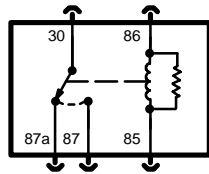
CONTACT RELAY



RELAY WITH RESISTOR ACROSS WINDING



CONTACT RELAY WITH TWO OUTPUTS



CHANGEOVER RELAY WITH TWO OUTPUTS

TERMINAL NUMBER DESCRIPTION

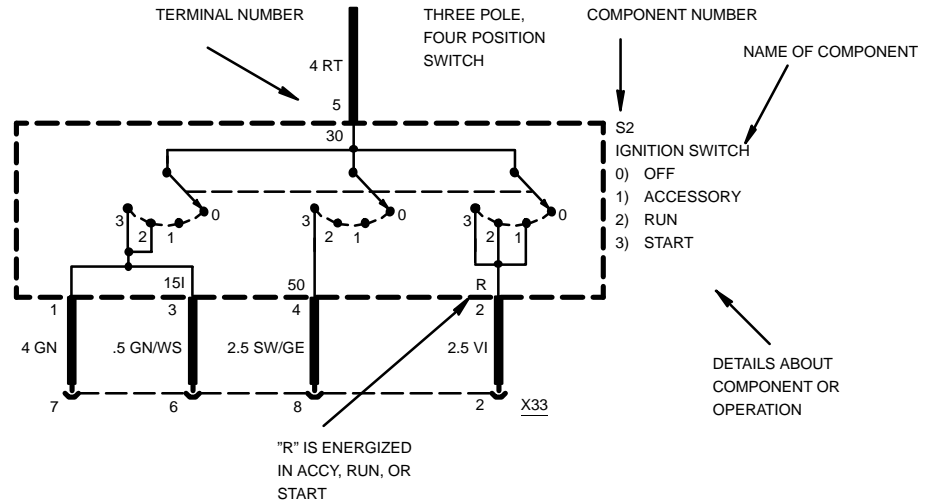
30 RELAY INPUT

85 RELAY OUTPUT (WINDING)

86 RELAY INPUT (WINDING)

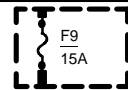
87 RELAY OUTPUT (ENERGIZED)

87a RELAY OUTPUT (AT REST)



TERMINAL NUMBER	DESCRIPTION	TERMINAL NUMBER	DESCRIPTION
50	VOLTAGE: IGNITION SWITCH IN START	15I	VOLTAGE: IGNITION SWITCH IN RUN
30	VOLTAGE: SUPPLIED AT ALL TIMES	R	VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN OR START
15	VOLTAGE: IGNITION SWITCH IN RUN OR START	31	GROUND

HOT AT ALL TIMES



INDICATES THAT FUSE 9 IS SUPPLIED WITH POWER AT ALL TIMES

POWER STATUS

HOT AT ALL TIMES

HOT IN RUN AND START

HOT IN ACCY, RUN AND START

DESCRIPTION

VOLTAGE: SUPPLIED AT ALL TIMES

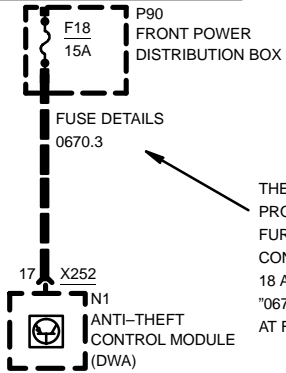
VOLTAGE: IGNITION SWITCH IN RUN OR START

VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN OR START

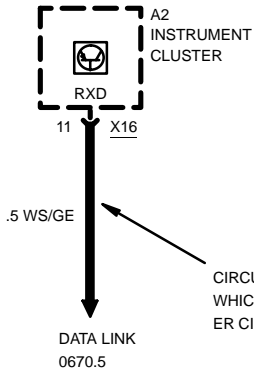


SYMBOLS

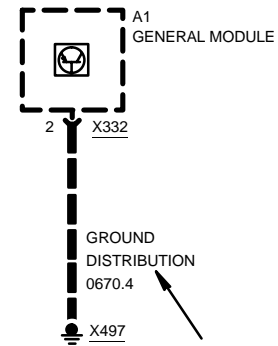
HOT IN ACCY, RUN AND START



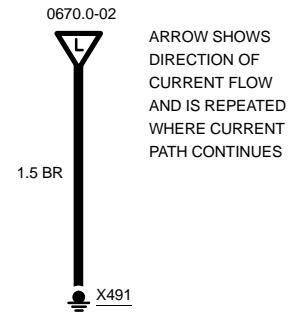
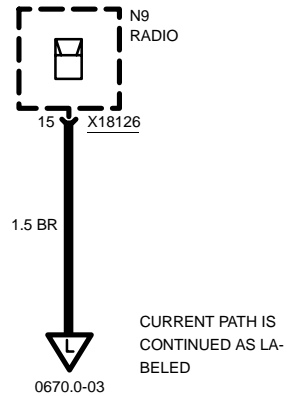
THE COMPLETE WIRE PROGRESSION AND FURTHER CIRCUITS CONNECTED TO FUSE 18 ARE SHOWN IN CELL "0670.3 FUSE DETAILS" AT FUSE 18



CIRCUIT REFERENCE—A WIRE WHICH CONNECTS TO ANOTHER CIRCUIT



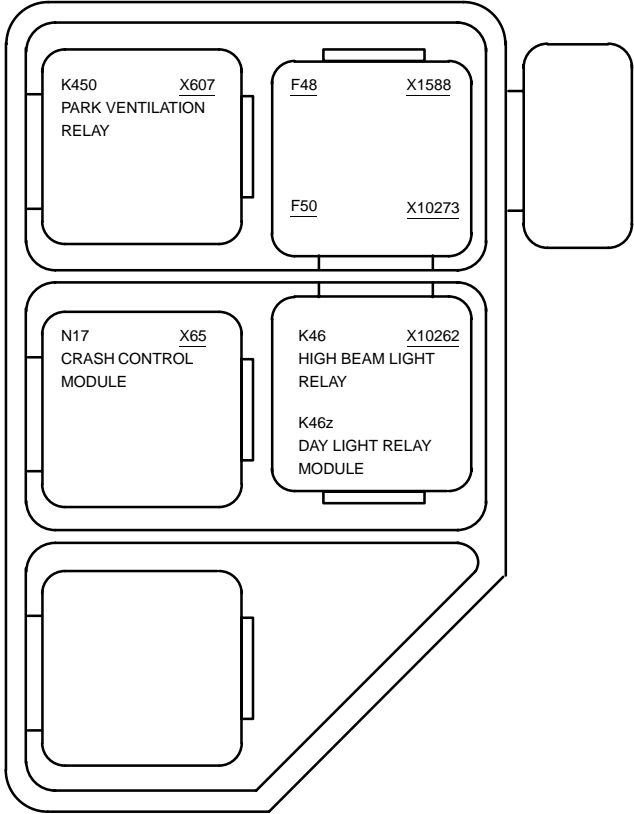
THE COMPLETE WIRE PROGRESSION AND FURTHER CIRCUITS CONNECTED TO GROUND X497 ARE SHOWN IN CELL "0670.4 GROUND DISTRIBUTION" AT GROUND X497





POWER DISTRIBUTION CHART

RELAY PANEL UNDER LH SIDE OF DASHBOARD



03/00 ————— 0670.0-01 ————— 1999