

2001 2nd Edition

**BMW Z3 (E36/7)
Z3 Roadster, Z3 Coupe,
M Roadster, M Coupe**

**Electrical
Troubleshooting
Manual**

Vehicles produced 6/00 thru Present



ELECTRICAL TROUBLESHOOTING MANUAL

**SERIES 3 – E36/7 (Z3 Roadster, Z3 Coupe,
M Roadster, M Coupe)**

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MODEL YEAR 2001 2ND EDITION

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RADIO/HIFI	6510.1	SEAT OCCUPANCY DETECTOR, A113	3234.0-03
REMOTE CONTROL MODULE, A194y	6610.2-00	SEAT TILT ADJUST CUT-OFF RELAY, DRIVER'S, K920	5200.0-02
REMOTE CONTROL ZV/DWA	6610.2	SEAT TILT ADJUST CUT-OFF RELAY, PASSENGER'S, K910 ...	5200.0-03
RESISTOR, R8554	1210.26-01	SECONDARY AIR PUMP RELAY, K6304	1210.26-04
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REVERSING LIGHT RELAY, K6325	6322.0-00	SECONDARY AIR PUMP VALVE, Y6163	1210.26-03
REVERSING LIGHT SWITCH, S8511	6322.0-00	SHIFT-LOCK, Y19	2460.14-02
RPM RATE SENSOR, B75	3452.1-04	SIDE IMPACT SENSOR, DRIVER'S, B78	3234.0-01
RPM RATE SENSOR, B75	3452.2-04	SIDE IMPACT SENSOR, PASSENGER'S, B79	3234.0-01
SEATBACK HEATER, DRIVER'S, E56	5203.0-00	SLIP CONTROL (ABS/ASC)	3450.1
SEATBACK HEATER, PASSENGER'S, E59	5203.0-00	SLIP CONTROL MODULE (ABS/ASC), A52	3450.1
SEAT BELT SWITCH, DRIVER'S, S58	3234.0-02	SOLENOID VALVE, SUCKING JET PUMP, Y6165	1210.27-05
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SEAT CONTROL SWITCH, DRIVER'S SEAT, S51	5200.0-02	SPEED SENSOR - ABS, LEFT FRONT, B2	3450.1-02
SEAT CONTROL SWITCH, PASSENGER'S SEAT, S56	5200.0-01	SPEED SENSOR - ABS, LEFT FRONT, B2	3452.1-05
SEAT CONTROL SWITCH, PASSENGER'S SEAT, S56	5200.0-03	SPEED SENSOR - ABS, LEFT FRONT, B2	3452.2-05
SEAT HEATER SWITCH, DRIVER'S SEAT, S53	5203.0-00	SPEED SENSOR - ABS, LEFT REAR, B4	3450.1-02
SEAT HEATER SWITCH, PASSENGER'S SEAT, S54	5203.0-00	SPEED SENSOR - ABS, LEFT REAR, B4	3452.1-05
SEAT HEATER, DRIVER'S, E57	5203.0-00	SPEED SENSOR - ABS, LEFT REAR, B4	3452.2-05
SEAT HEATER, PASSENGER'S, E58	5203.0-00	SPEED SENSOR - ABS, RIGHT FRONT, B1	3450.1-02
SEAT HEIGHT MOTOR, DRIVER'S, M52	5200.0-00	SPEED SENSOR - ABS, RIGHT FRONT, B1	3452.1-05
SEAT HEIGHT MOTOR, DRIVER'S, M52	5200.0-02	SPEED SENSOR - ABS, RIGHT FRONT, B1	3452.2-05
SEAT HEIGHT MOTOR, PASSENGER'S, M59	5200.0-01	SPEED SENSOR - ABS, RIGHT REAR, B3	3450.1-02
SEAT HEIGHT MOTOR, PASSENGER'S, M59	5200.0-03	SPEED SENSOR - ABS, RIGHT REAR, B3	3452.1-05



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STARTER IMMOBILIZATION SWITCH, S235	1240.0-02
STARTER, M6510	1240.0-01
STARTER, M6510	1240.0-03
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STEERING ANGLE SENSOR, R33	3452.2-02
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SUPPLEMENTAL RESTRAINT SYSTEM CONTROL MODULE, A12	3234.0
SUPPRESSION CAPACITOR, C6000	1210.27-01
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TAIL LIGHT, LEFT, H25	6314.0-03
TAIL LIGHT, LEFT, H37	6314.0-01
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TAIL LIGHT, RIGHT, H30	6314.0-01
TAIL LIGHT, RIGHT, H30	6314.0-03
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TRANSMISSION POSITION INDICATOR LIGHT, E82	2460.14-03
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ZKE POWER WINDOWS (FH)	5133.0

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, lines 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.

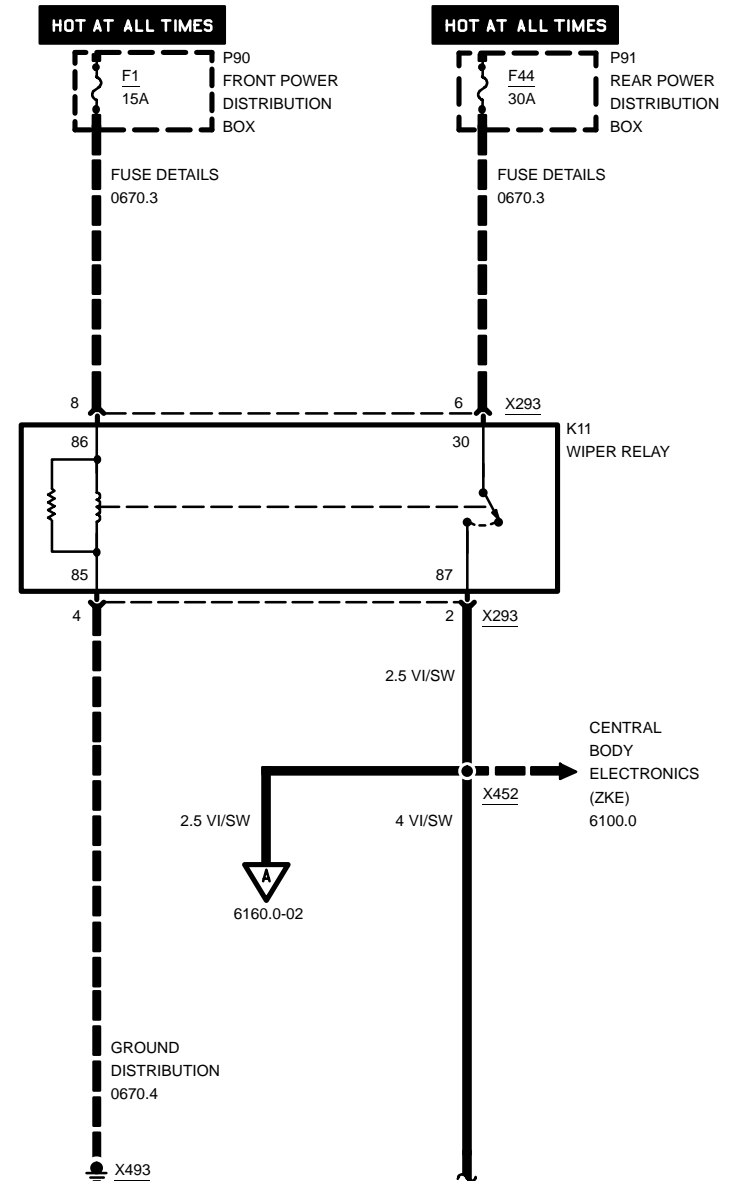
All circuit symbols used are listed and explained in cell **0140.0 Symbols**.

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.

Example

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





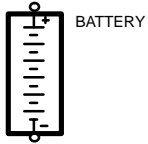
General Conventions

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.

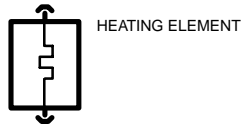


0140.0 SYMBOLS

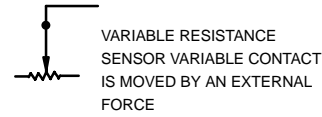
Z3



BATTERY



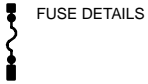
HEATING ELEMENT



VARIABLE RESISTANCE SENSOR VARIABLE CONTACT IS MOVED BY AN EXTERNAL FORCE



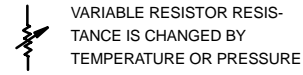
ANTENNA



FUSE DETAILS



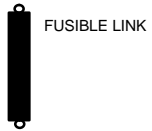
LOUDSPEAKER OR HORN



VARIABLE RESISTOR RESISTANCE IS CHANGED BY TEMPERATURE OR PRESSURE



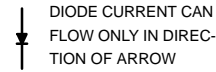
CONTROL/POWER ELECTRONICS



FUSIBLE LINK



LIGHT



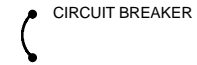
DIODE CURRENT CAN FLOW ONLY IN DIRECTION OF ARROW



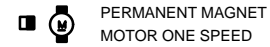
HALL EFFECT SENSOR



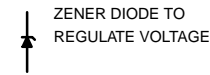
RADIO



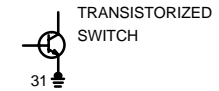
CIRCUIT BREAKER



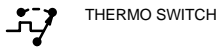
PERMANENT MAGNET MOTOR ONE SPEED



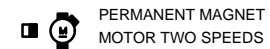
ZENER DIODE TO REGULATE VOLTAGE



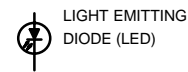
TRANSISTORIZED SWITCH



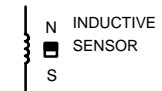
THERMO SWITCH



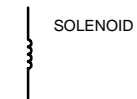
PERMANENT MAGNET MOTOR TWO SPEEDS



LIGHT EMITTING DIODE (LED)



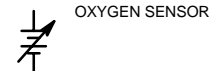
INDUCTIVE SENSOR



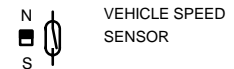
SOLENOID



KNOCK SENSOR



OXYGEN SENSOR



VEHICLE SPEED SENSOR



Z3

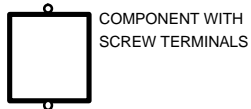
SYMBOLS



ENTIRE COMPONENT SHOWN



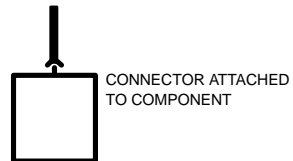
PART OF COMPONENT SHOWN



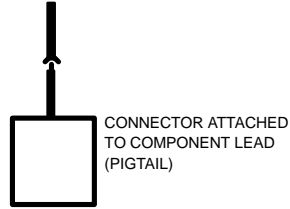
COMPONENT WITH SCREW TERMINALS



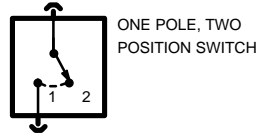
COMPONENT CASE ATTACHED DIRECTLY TO METAL PART OF CAR (GROUNDED)



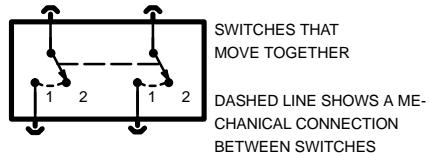
CONNECTOR ATTACHED TO COMPONENT



CONNECTOR ATTACHED TO COMPONENT LEAD (PIGTAIL)



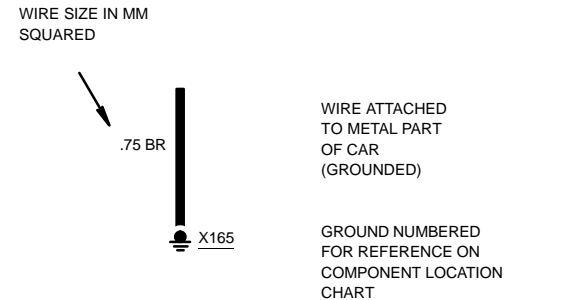
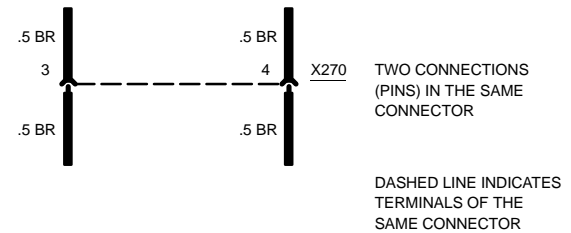
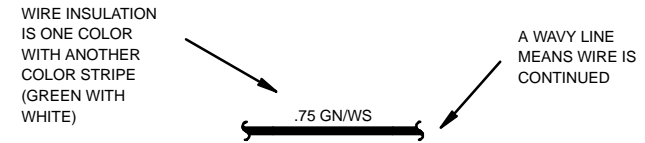
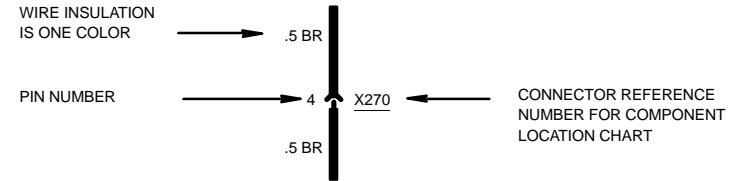
ONE POLE, TWO POSITION SWITCH

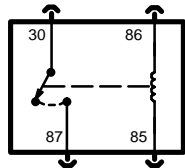


SWITCHES THAT MOVE TOGETHER

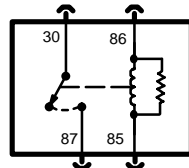
DASHED LINE SHOWS A MECHANICAL CONNECTION BETWEEN SWITCHES

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

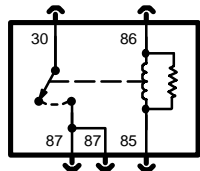




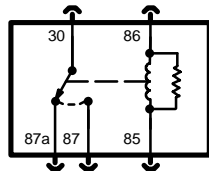
CONTACT RELAY



RELAY WITH RESISTOR ACROSS WINDING



CONTACT RELAY WITH TWO OUTPUTS



CHANGEOVER RELAY WITH TWO OUTPUTS

TERMINAL NUMBER DESCRIPTION

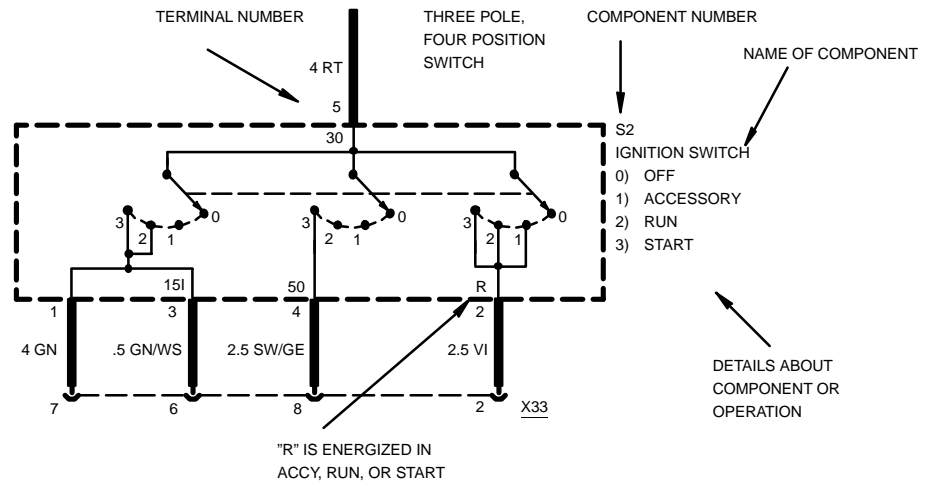
30 RELAY INPUT

85 RELAY OUTPUT (WINDING)

86 RELAY INPUT (WINDING)

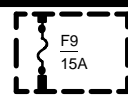
87 RELAY OUTPUT (ENERGIZED)

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

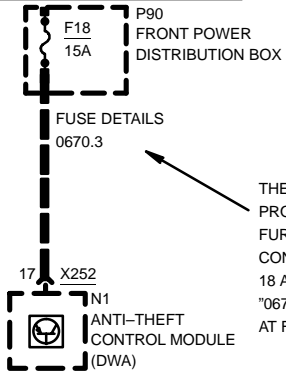
VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN OR START



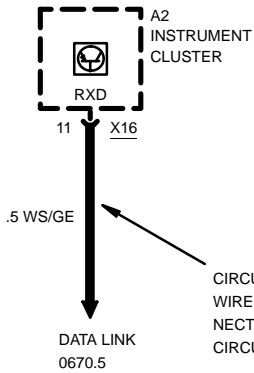
SYMBOLS

Z3

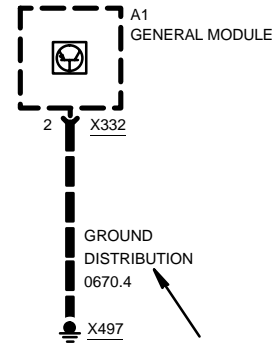
HOT IN ACCY, RUN AND START



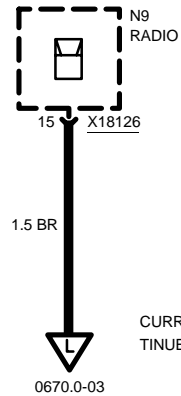
THE COMPLETE WIRE
PROGRESSION AND
FURTHER CIRCUITS
CONNECTED TO FUSE
18 ARE SHOWN IN CELL
"0670.3 FUSE DETAILS"
AT FUSE 18



CIRCUIT REFERENCE-A
WIRE WHICH CON-
NECTS 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



CURRENT PATH IS CON-
TINUED AS LABELED



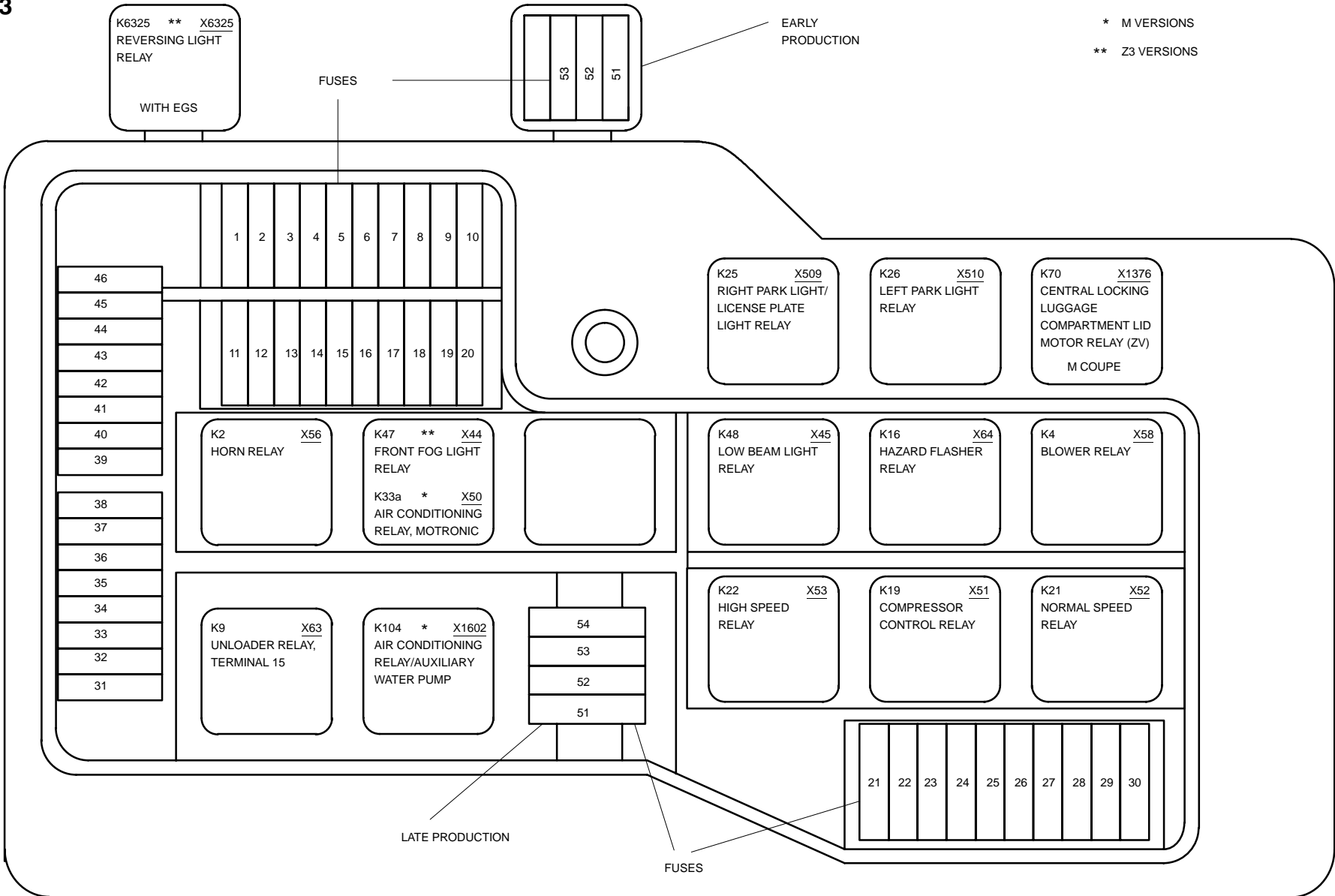
ARROW SHOWS DIRECTION
OF CURRENT FLOW AND IS
REPEATED WHERE CURRENT
PATH CONTINUES



0670.0 POWER DISTRIBUTION CHART

FRONT POWER DISTRIBUTION BOX

Z3



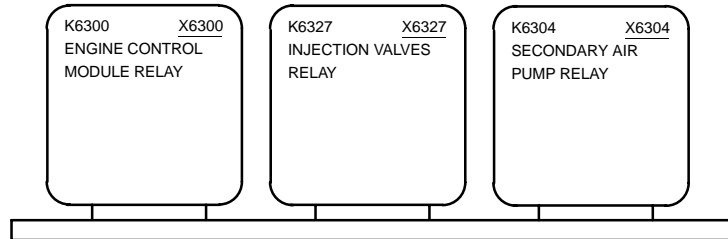
* M VERSIONS
 ** Z3 VERSIONS



Z3

POWER DISTRIBUTION CHART

IN E-BOX

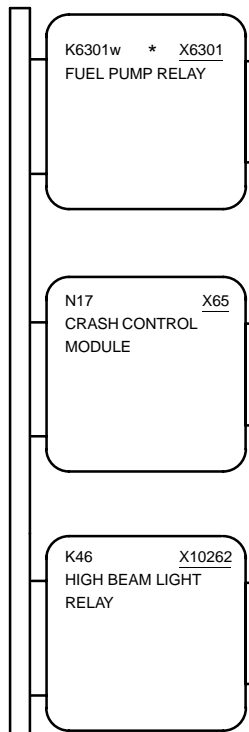




Z3

POWER DISTRIBUTION CHART

RELAY PANEL UNDER LH SIDE OF DASHBOARD



* Z3 VERSIONS