

1998

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

**Electrical
Troubleshooting
Manual**

Vehicles produced 9/97 thru 8/98



ELECTRICAL TROUBLESHOOTING MANUAL

SERIES 3 – E36/7 (Z3 Roadster and M Roadster)

SCHEMATICS

MODEL YEAR 1998

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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.

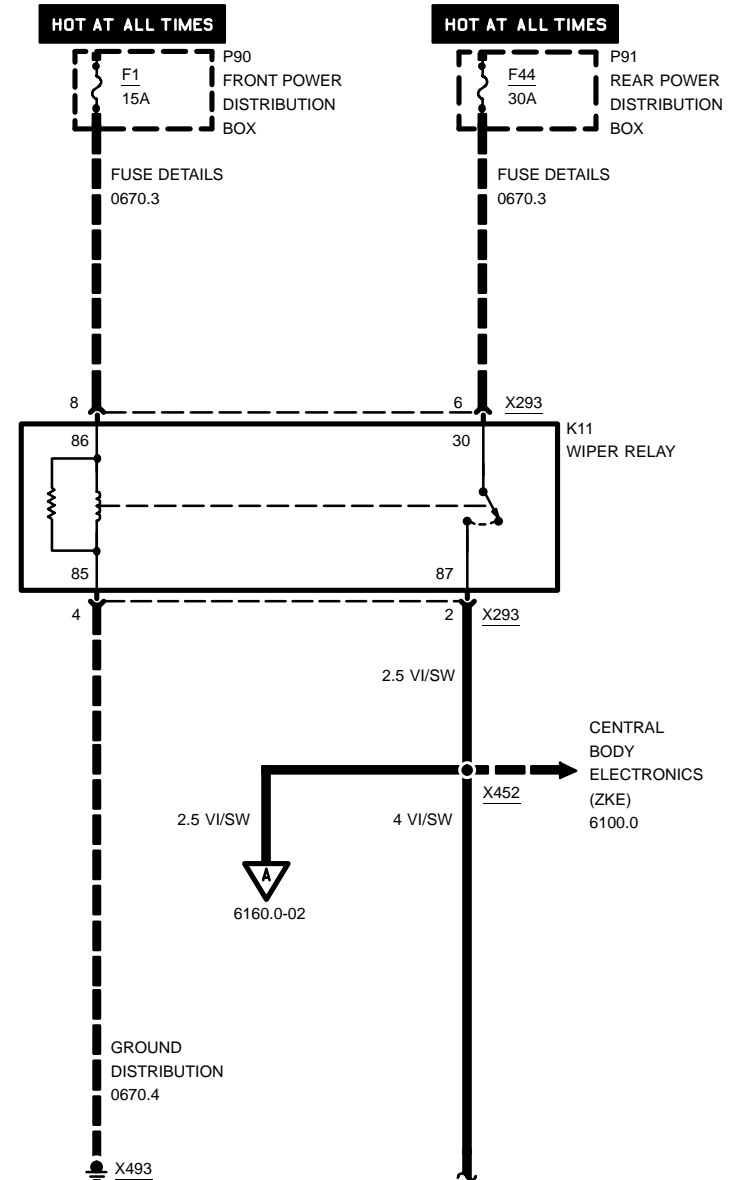
All circuit symbols used are listed and explained in cell **0140.0 Symbols**.

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.

Example

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



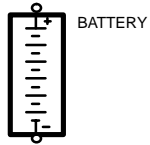


Z3

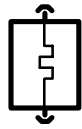
INTRODUCTION

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.



BATTERY



HEATING ELEMENT



VARIABLE RESISTANCE
SENSOR VARIABLE CON-
TACT 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



INDUCTIVE
SENSOR



SOLENOID



KNOCK SENSOR



OXYGEN SENSOR



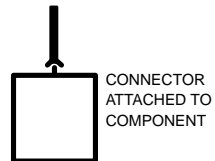
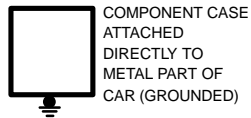
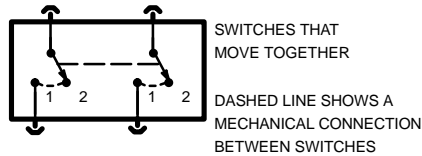
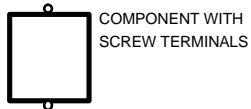
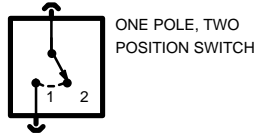
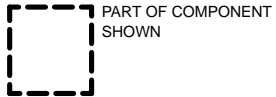
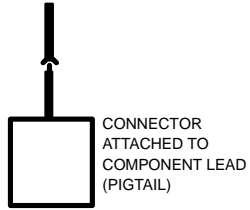
VEHICLE SPEED
SENSOR



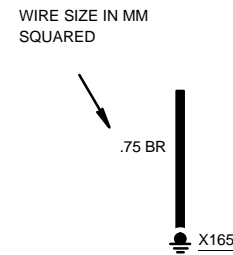
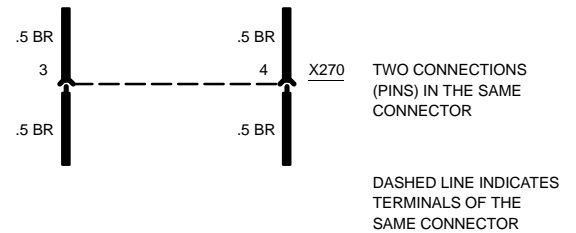
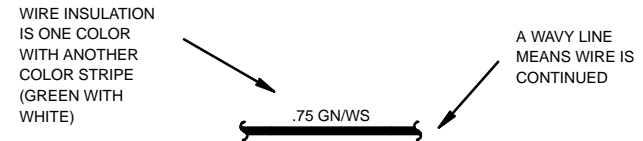
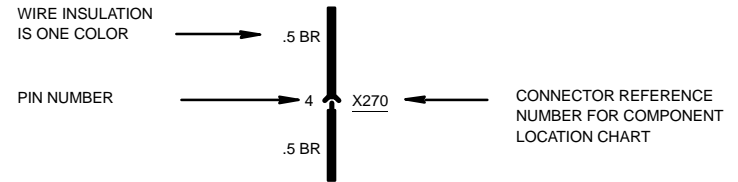
SOLENOID CONTROLLED
VALVE OR CLUTCH
SOLENOID

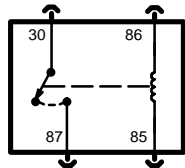
SYMBOLS

Z3

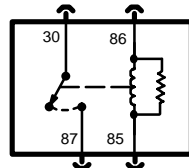


WIRE COLOR	
BL	BLUE
BR	BROWN
GE	YELLOW
GN	GREEN
GR	GRAY
OR	ORANGE
RS	PINK
RT	RED
SW	BLACK
VI	VIOLET
WS	WHITE
TR	TRANSPARENT

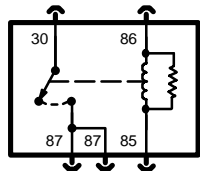




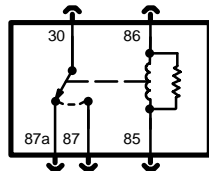
CONTACT RELAY



RELAY WITH RESISTOR ACROSS WINDING

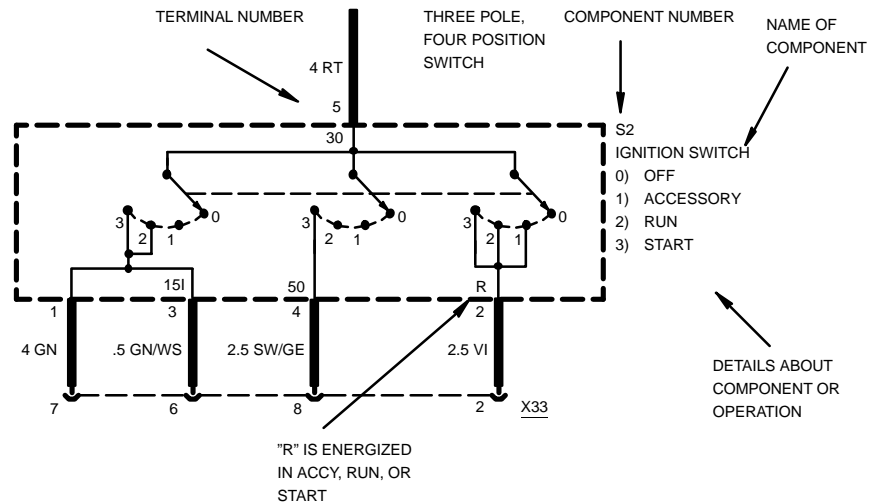


CONTACT RELAY WITH TWO OUTPUTS



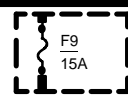
CHANGEOVER RELAY WITH TWO OUTPUTS

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

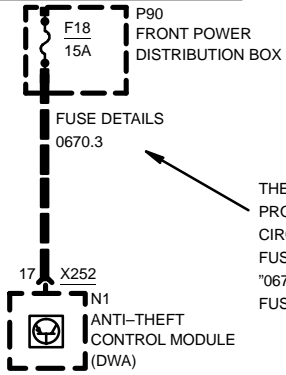
POWER STATUS	DESCRIPTION
HOT AT ALL TIMES	VOLTAGE: SUPPLIED AT ALL TIMES
HOT IN RUN AND START	VOLTAGE: IGNITION SWITCH IN RUN OR START
HOT IN ACCY, RUN AND START	VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN OR START



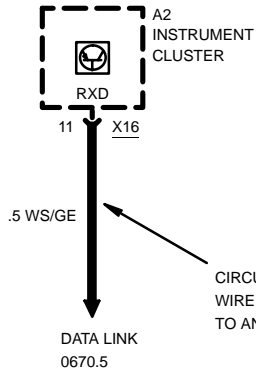
SYMBOLS

Z3

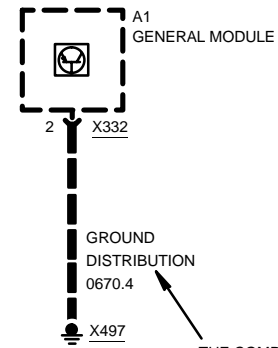
HOT IN ACCY, RUN AND START



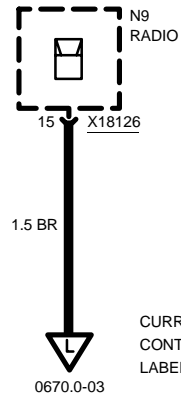
THE COMPLETE WIRE
PROGRESSION AND FURTHER
CIRCUITS CONNECTED TO
FUSE 18 ARE SHOWN IN CELL
"0670.3 FUSE DETAILS" AT
FUSE 18



CIRCUIT REFERENCE—A
WIRE WHICH 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



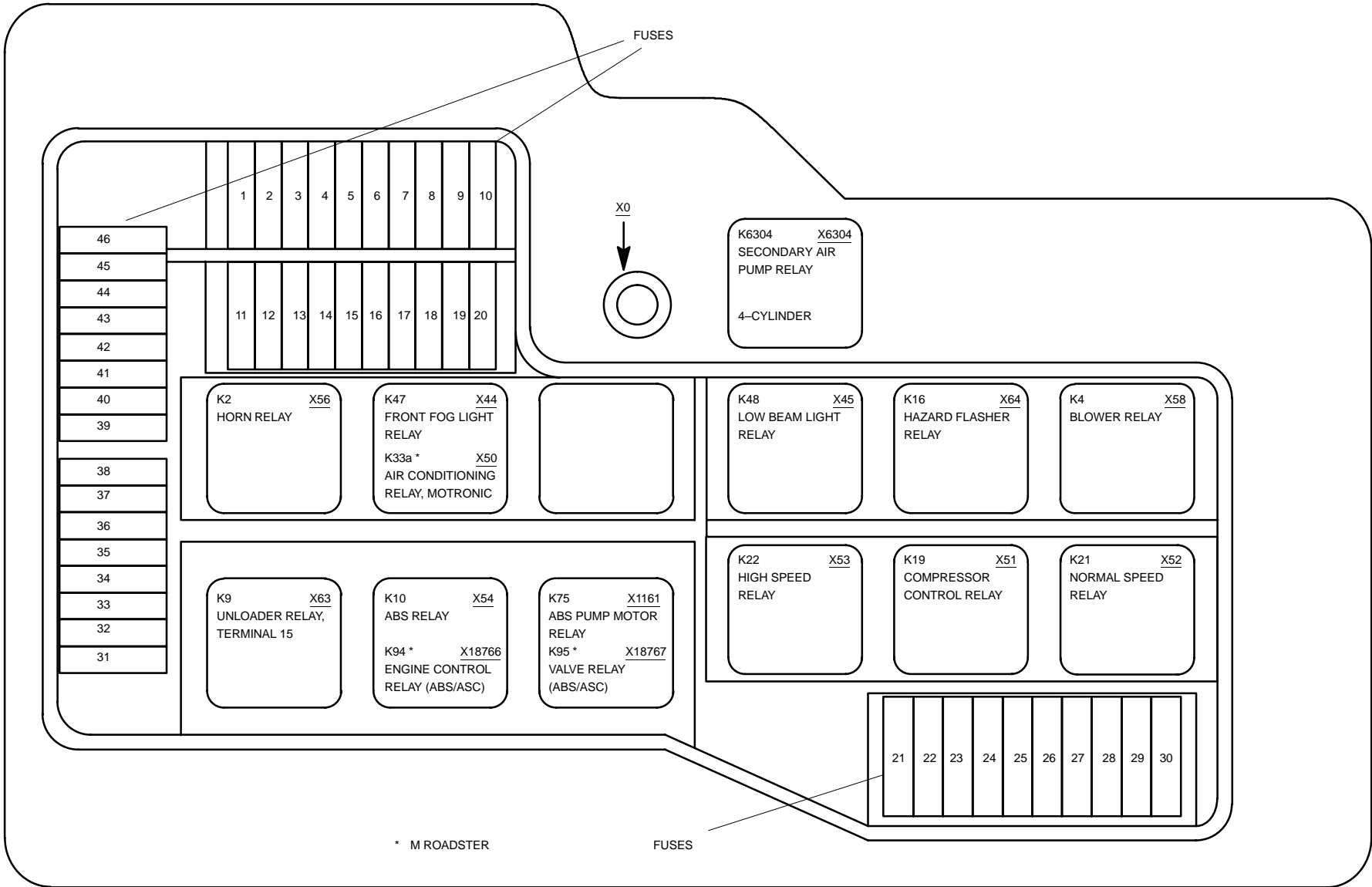
CURRENT PATH IS
CONTINUED AS
LABELED



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



0670.0 POWER DISTRIBUTION CHART FRONT POWER DISTRIBUTION BOX



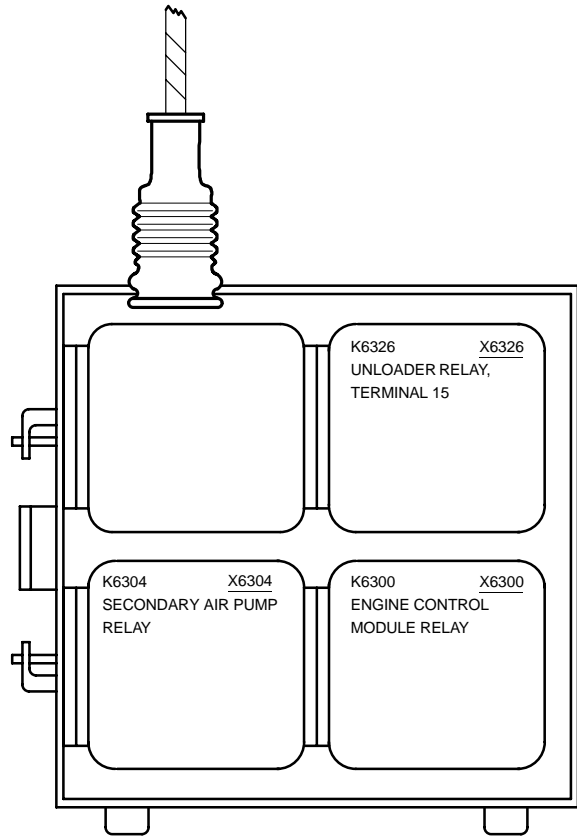
* M ROADSTER

FUSES

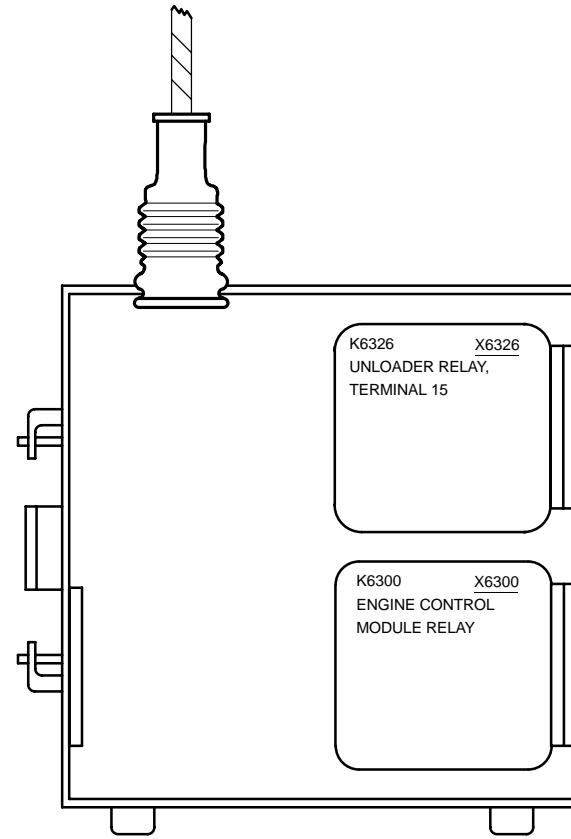


POWER DISTRIBUTION CHART

IN E-BOX



6-CYLINDER



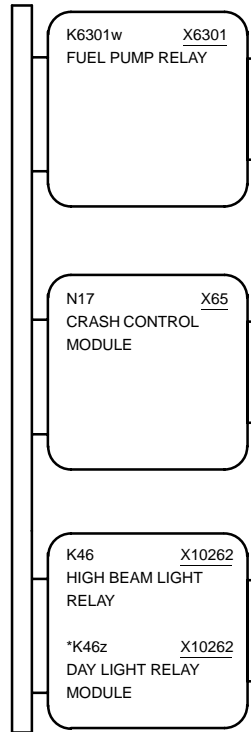
4-CYLINDER



Z3

POWER DISTRIBUTION CHART

RELAY PANEL UNDER LH SIDE OF DASHBOARD





0670.1 FUSE CHART

FUSES 1 TO 29

Z3

	FUSE NUMBER																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
	30A	15A	30A	15A	30A	20A	5A	15A	20A	30A	7.5A	7.5A	5A	30A	15A	5A		15A	30A	30A	5A	5A	5A	10A	5A	10A	5A	5A	7.5A	
1210.17 ENGINE CONTROL SYSTEM MS41.1 (6-CYLINDER M52/S52)													●			●		●												
1210.20 ENGINE CONTROL SYSTEM (DME M5.2, 4-CYLINDER M44)													●			●		●												
1230.0 CHARGING SYSTEM																											●			
1240.0 START																													●	
1290.0 E-BOX FAN																														
2460.2 ELECTRONIC TRANSMISSION CONTROL (EGS A4S 270R)																										●		●		
3234.0 SUPPLEMENTAL RESTRAINT SYSTEM (AIR BAG)																								●			●			
3450.0 SLIP CONTROL (ABS)											●										●							●		
3450.1 SLIP CONTROL (ABS/ASC)											●		●								●									
5116.0 POWER MIRRORS																									●			●		
5126.0 ZKE CENTRAL LOCKING (ZV)							●																							
5133.0 ZKE POWER WINDOWS (FH)														●																
5200.0 POWER SEATS					●															●										
5203.0 HEATED SEATS			●																				●							
5430.2 ELECTRO-HYDRAULIC CONVERTIBLE TOP	●																													
6100.0 CENTRAL BODY ELECTRONICS (ZKE IV)														●																
6133.0 HORN								●																						
6135.0 DRIVE-AWAY PROTECTION (EWS II)																													●	
6160.1 WIPER/WASHER MODULE (WWM)			●																											
6167.1 HEADLIGHT WASHER (SRA)			●																											
6169.0 WINDSHIELD WASHER JET HEATERS																								●						

04/99

0670.1-00

1998