

# HOW TO USE SYSTEM WIRING DIAGRAMS

## Article Text

1994 Mazda Miata

For Yorba Linda Miata

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### ARTICLE BEGINNING

#### GENERAL INFORMATION

#### Using Wiring Diagrams

All Models

### INTRODUCTION

Mitchell obtains wiring diagrams and technical service bulletins, containing wiring diagram changes from the domestic and import manufacturers. These are checked for accuracy and are all redrawn into a consistent format for easy use.

In the past, when cars were simpler, diagrams were simpler. All components were connected by wires and diagrams seldom exceeded 4 pages in length. Today, some wiring diagrams require more than 16 pages. It would be impractical to expect a service technician to trace a wire from page 1 across every page to page 16.

Removing some of the wiring maze reduces eyestrain and time wasted searching across several pages. Today the majority of Mitchell diagrams follow a much improved format, which permits space for internal switch details.

Wiring diagrams are drawn in a "top-down" format. The diagrams are drawn with the power source at the top of the diagram and the ground point at the bottom of the diagram. Components locations are identified on the wiring diagrams. Any wires that don't connect directly to a component are identified on the diagram to indicate where they go.

### COLOR ABBREVIATIONS

#### COLOR ABBREVIATIONS TABLE

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| Color       | Normal | Optional |
|-------------|--------|----------|
| Black       | BLK    | BK       |
| Blue        | BLU    | BU       |
| Brown       | BRN    | BN       |
| Clear       | CLR    | CR       |
| Dark Blue   | DK BLU | DK BU    |
| Dark Green  | DK GRN | DK GN    |
| Green       | GRN    | GN       |
| Gray        | GRY    | GY       |
| Light Blue  | LT BLU | LT BU    |
| Light Green | LT GRN | LT GN    |
| Orange      | ORG    | OG       |
| Pink        | PNK    | PK       |
| Purple      | PPL    | PL       |
| Red         | RED    | RD       |
| Tan         | TAN    | TN       |

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|        |       |     |       |    |
|--------|-------|-----|-------|----|
| Violet | ..... | VIO | ..... | VI |
| White  | ..... | WHT | ..... | WT |
| Yellow | ..... | YEL | ..... | YL |

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

#### IDENTIFYING WIRING DIAGRAM ABBREVIATIONS

NOTE: Abbreviations used on Mitchell diagrams are normally self-explanatory. If necessary see ABBREVIATIONS article in GENERAL INFORMATION.

#### IDENTIFYING WIRING DIAGRAM SYMBOLS

NOTE: Standard wiring symbols are used in Mitchell diagrams. The illustration below will help clarify any symbols that are not easily understood at a glance. Most components are labeled "Motor", "Switch" or "Relay" in addition to being drawn with the standard symbol.

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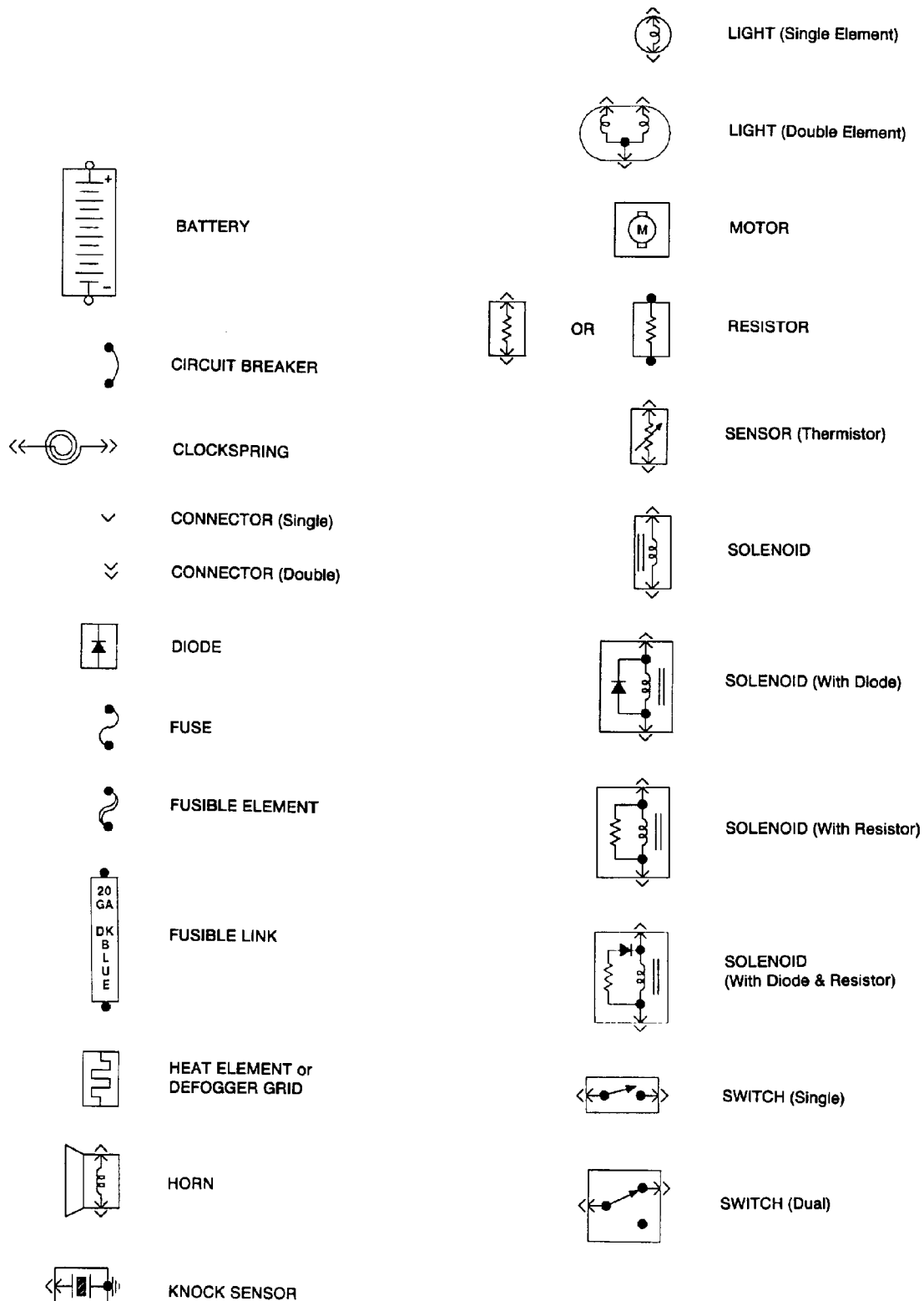


Fig. 1: Identifying Wiring Diagram Symbols

## WIRING DIAGRAM COMPONENT LOCATIONS

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When trying to locate a component in a wiring diagram and you don't know the specific system where it is located, use this handy component locator to find the system wiring diagram in which the component is located. Then, go to that system and locate the component within the wiring diagram.

For example, if you don't know the specific system in which the ignition switch is located, look up ignition switch in the wiring diagram component location tables and go to the appropriate wiring diagram(s) which contain either full or partial views of the ignition switch. The full view of the ignition switch is located in Power Distribution.

The first listing for the component will be the full or most complete view of the component. Additional listings will be partial views of the component. Not all components are used on all models.

All components will have a partial view in Ground Distribution and Power Distribution. Data Link Connectors show connecting circuits between modules. Alternate names for components may be listed in wiring diagram component locations tables.

#### WIRING DIAGRAM COMPONENT LOCATIONS TABLE

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Component Wiring Diagram

|                                   |                                                     |
|-----------------------------------|-----------------------------------------------------|
| ABS Electronic Control Unit       | ..... Anti-Lock Brakes<br>Data Link Connectors      |
| ABS Hydraulic Unit                | ..... Anti-Lock Brakes                              |
| Acceleration Sensor               | ..... Anti-Lock Brakes                              |
| Accessory Delay Relay             | ..... Power Windows                                 |
| A/C Compressor Clutch Relay       | ..... Engine Performance                            |
| A/C Sensor                        | ..... Engine Performance                            |
| A/C Pressure Switch               | ..... Engine Performance                            |
| Adaptive Lamp Control Module      | ..... Exterior Lights                               |
| Air Bag(s)                        | ..... Air Bag Restraint System                      |
| Air Bag Module                    | ..... Air Bag Restraint System                      |
| Air Bag Sensor(s)                 | ..... Air Bag Restraint System                      |
| Air Injection Pump Relay          | ..... Engine Performance                            |
| Air Temperature Sensor            | ..... Overhead Console                              |
| Alternator (Generator)            | ..... Generators & Regulators                       |
| Anti-Theft Control Module         | ..... Anti-Theft System<br>Starters                 |
| Autolamp Control Relay            | ..... Headlight Systems<br>Daytime Running Lights   |
| Automatic Shutdown (ASD) Relay    | ..... Engine Performance<br>Generators & Regulators |
| Autostick Switch                  | ..... Engine Performance                            |
| Auxiliary Battery Relay           | ..... Generators & Regulators                       |
| Back-Up Lights                    | ..... Back-Up Lights<br>Exterior Lights             |
| Barometric (BARO) Pressure Sensor | ..... Engine Performance                            |
| Battery                           | ..... Power Distribution                            |
| Battery Temperature Sensor        | ..... Engine Performance                            |

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|                                               |                              |
|-----------------------------------------------|------------------------------|
| Body Control Module .....                     | Body Control Computer        |
|                                               | Anti-Theft System            |
|                                               | Daytime Running Lights       |
|                                               | Engine Performance           |
|                                               | Headlight Systems            |
|                                               | Warning Systems              |
| Boost Control Solenoid .....                  | Engine Performance           |
| Boost Sensor .....                            | Engine Performance           |
| Brake Fluid Level Switch .....                | Analog Instrument Panels     |
| Brake On/Off (BOO) Switch .....               | Cruise Control Systems       |
|                                               | Engine Performance           |
|                                               | Shift Interlock Systems      |
| Buzzer Module .....                           | Warning Systems              |
| Camshaft Position (CMP) Sensor .....          | Engine Performance           |
| Central Control Module .....                  | Anti-Theft System            |
| Clockspring .....                             | Air Bag Restraint System     |
|                                               | Cruise Control Systems       |
|                                               | Steering Column Switches     |
| Clutch Pedal Position Switch .....            | Starters                     |
| Clutch Start Switch .....                     | Starters                     |
| Combination Meter .....                       | Analog Instrument Panels     |
| Constant Control Relay Module (CCRM) .....    | Engine Performance           |
|                                               | Electric Cooling Fans        |
| Convenience Center .....                      | Power Distribution           |
|                                               | Illumination/Interior Lights |
| Convertible Top Motor .....                   | Power Convertible Top        |
| Convertible Top Switch .....                  | Power Convertible Top        |
| Crankshaft Position (CKP) Sensor .....        | Engine Performance           |
| Cruise Control Module .....                   | Cruise Control Systems       |
| Cruise Control Switch .....                   | Cruise Control Systems       |
| Condenser Fan Relay(s) .....                  | Electric Cooling Fans        |
| Data Link Connector (DLC) .....               | Engine Performance           |
| Daytime Running Lights Module .....           | Daytime Running Lights       |
|                                               | Exterior Lights              |
| Defogger Relay .....                          | Rear Window Defogger         |
| Diagnostic Energy Reserve Module (DERM) ...   | Air Bag Restraint System     |
| Discriminating Sensor (Air Bag) .....         | Air Bag Restraint System     |
| Distributor .....                             | Engine Performance           |
| Door Lock Actuators .....                     | Power Door Locks             |
|                                               | Remote Keyless Entry         |
| Door Lock Relay(s) .....                      | Power Door Locks             |
| Electrochromic Mirror .....                   | Power Mirrors                |
| Electronic Level Control (ELC)                |                              |
| Height Sensor .....                           | Electronic Suspension        |
| Electronic Level Control (ELC) Module .....   | Electronic Suspension        |
| Engine Coolant Temperature (ECT)              |                              |
| Sending Unit .....                            | Analog Instrument Panels     |
| Engine Coolant Temperature (ECT) Sensor ..... | Engine Performance           |
| Engine Control Module .....                   | Engine Performance           |
|                                               | Generators & Regulators      |
|                                               | Starters                     |
| ETACS ECU .....                               | Warning Systems              |

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|                                             |                              |
|---------------------------------------------|------------------------------|
|                                             | Power Windows                |
|                                             | Remote Keyless Entry         |
| Evaporative (EVAP) Emissions Canister ..... | Engine Performance           |
| EVAP Canister Purge Solenoid .....          | Engine Performance           |
| EVAP Canister Vent Solenoid .....           | Engine Performance           |
| Exhaust Gas Recirculation (EGR) Valve ..... | Engine Performance           |
| Fuel Tank Vacuum Sensor .....               | Engine Performance           |
| Fog Lights .....                            | Headlight Systems            |
|                                             | Daytime Running Lights       |
| Fog Light Relay .....                       | Headlight Systems            |
|                                             | Daytime Running Lights       |
| Fuel Door Release Solenoid .....            | Power Fuel Door Release      |
| Fuel Gauge Sending Unit .....               | Analog Instrument Panels     |
| Fuel Injectors .....                        | Engine Performance           |
| Fuel Pump .....                             | Engine Performance           |
| Fuel Pump Relay .....                       | Engine Performance           |
|                                             | Power Distribution           |
| Fuse/Relay Block .....                      | Power Distribution           |
| Fusible Links .....                         | Power Distribution           |
|                                             | Generators & Regulators      |
|                                             | Starters                     |
| Generator .....                             | Generators & Regulators      |
|                                             | Engine Performance           |
|                                             | Power Distribution           |
| Generic Electronic Module (GEM) .....       | Body Control Modules         |
|                                             | Electronic Suspension        |
| Glow Plug Relay .....                       | Engine Performance           |
| Glow Plugs .....                            | Engine Performance           |
| Grounds .....                               | Ground Distribution          |
| Headlight Door Module .....                 | Headlight Doors              |
| Headlight Relay .....                       | Headlight Systems            |
|                                             | Daytime Running Lights       |
| Headlights .....                            | Headlight Systems            |
|                                             | Daytime Running Lights       |
| Heated Oxygen Sensor(s) (HO2S) .....        | Engine Performance           |
| Heated Windshield Control Module .....      | Heated Windshields           |
| Height Sensor .....                         | Electronic Suspension        |
| Horns .....                                 | Steering Column Switches     |
| Horn Relay .....                            | Steering Column Switches     |
| Idle Air Control (IAC) Motor/Valve .....    | Engine Performance           |
| Ignition Coil(s) .....                      | Engine Performance           |
| Ignition Key Lock Cylinder .....            | Anti-Theft System            |
| Ignition Module .....                       | Engine Performance           |
| Ignition Switch .....                       | Power Distribution           |
|                                             | Engine Performance           |
|                                             | Generators & Regulators      |
|                                             | Starters                     |
| Illuminated Entry Module .....              | Illumination/Interior Lights |
| Illumination Lights .....                   | Illumination/Interior Lights |
| Impact Sensor .....                         | Air Bag Restraint System     |
| Inertia Fuel Shutoff Switch .....           | Engine Performance           |
| Inhibit Relay .....                         | Starters                     |

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|                                               |                              |
|-----------------------------------------------|------------------------------|
| Instrument Cluster .....                      | Analog Instrument Panels     |
| Intake Air Temperature (IAT) Sensor .....     | Engine Performance           |
| Interior Lights .....                         | Illumination/Interior Lights |
| Interlock Switch .....                        | Starters                     |
| Junction Block .....                          | Power Distribution           |
| Keyless Entry Receiver .....                  | Remote Keyless Entry         |
| Key Reminder Switch .....                     | Starters                     |
| Knock Sensor .....                            | Engine Performance           |
| Lamp Control Module .....                     | Exterior Lights              |
| License Plate Lamp .....                      | Exterior Lights              |
| Lighting Control Module .....                 | Lighting Control Modules     |
|                                               | Anti-Theft System            |
|                                               | Daytime Running Lights       |
|                                               | Headlight Systems            |
| Lower Relay .....                             | Power Convertible Top        |
| Malfunction Indicator Light (MIL) .....       | Engine Performance           |
|                                               | Instrument Panels            |
| Manifold Absolute Pressure (MAP) Sensor ..... | Engine Performance           |
| Mass Airflow (MAF) Sensor .....               | Engine Performance           |
| Mega Fuse .....                               | Generators & Regulators      |
| Memory Seat/Mirror Module .....               | Memory Systems               |
| Mirror Defogger .....                         | Rear Window Defogger         |
| Moon Roof Motor .....                         | Power Moon Roof              |
| Moon Roof Relay .....                         | Power Moon Roof              |
| Multi-Function Control Module .....           | Warning Systems              |
| Neutral Safety Switch .....                   | Starters                     |
| Oil Level Switch .....                        | Engine Performance           |
| Oil Pressure Switch/Sending Unit .....        | Analog Instrument Panels     |
|                                               | Engine Performance           |
| Overhead Console .....                        | Overhead Console             |
| Oxygen Sensor(s) (O2S) .....                  | Engine Performance           |
| Parking Brake Switch .....                    | Analog Instrument Panels     |
| Park Lights .....                             | Exterior Lights              |
| Park/Neutral Position Switch .....            | Starters                     |
|                                               | Engine Performance           |
|                                               | Anti-Theft System            |
|                                               | Body Control Module          |
| Perimeter Lighting Control Relay .....        | Exterior Lights              |
| Power Amplifier .....                         | Power Antennas               |
| Power Antenna Module .....                    | Power Antennas               |
| Power Antenna Motor .....                     | Power Antennas               |
| Power Distribution Center .....               | Power Distribution           |
|                                               | Generators & Regulators      |
|                                               | Starters                     |
| Power Door Lock Motors .....                  | Power Door Locks             |
| Power Mirror Motors .....                     | Power Mirrors                |
|                                               | Memory Systems               |
| Power Sliding Door Controller .....           | Power Sliding Side Door      |
| Power Seat Motors .....                       | Power Seats                  |
|                                               | Memory Systems               |
| Power Steering Pressure Switch .....          | Engine Performance           |
| Power Top Motor .....                         | Power Convertible Top        |

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|                                            |                          |
|--------------------------------------------|--------------------------|
| Power Top Relay(s)                         | Power Convertible Top    |
| Powertrain Control Module                  | Engine Performance       |
|                                            | Analog Instrument Panels |
|                                            | Cruise Control Systems   |
|                                            | Data Link Connectors     |
|                                            | Generators & Regulators  |
|                                            | Starters                 |
| Power Window Motors                        | Power Windows            |
| Power Window Relay(s)                      | Power Windows            |
| Radiator Fan Motor(s)                      | Electric Cooling Fans    |
| Radiator Fan Relay(s)                      | Engine Performance       |
|                                            | Electric Cooling Fans    |
| Rainsense Module                           | Wiper/Washer Systems     |
| Raise Relay                                | Power Convertible Top    |
| Remote Anti-Theft Personality (RAP) Module | Anti-Theft System        |
|                                            | Starters                 |
|                                            | Warning Systems          |
| Seat Belt Pretensioners                    | Air Bag Restraint System |
| Seat Belt Retractor Solenoid               | Passive Restraints       |
| Seat Belt Switch                           | Air Bag Restraint System |
|                                            | Passive Restraints       |
| Shift Interlock Solenoid                   | Shift Interlock Systems  |
| Shift Lock Actuator                        | Shift Interlock Systems  |
| Side Marker Lights                         | Exterior Lights          |
| SIR Coil Assembly (Clockspring)            | Air Bag Restraint System |
| Slip Ring (Clockspring)                    | Air Bag Restraint System |
|                                            | Steering Column Switches |
| SRS Control Module                         | Air Bag Restraint System |
| Starter Motor                              | Starters                 |
| Starter Interrupt Relay                    | Starters                 |
| Starter Solenoid                           | Starters                 |
| Starter Relay                              | Starters                 |
| Steering Wheel Position Sensor             | Anti-Lock Brakes         |
| Stoplights                                 | Exterior Lights          |
| Stoplight Switch                           | Engine Performance       |
|                                            | Cruise Control Systems   |
|                                            | Anti-Lock Brakes         |
| Sun Roof ECU                               | Power Sun Roof           |
| Sun Roof Motor                             | Power Sun Roof           |
| Sun Roof Position Sensor                   | Power Sun Roof           |
| Taillights                                 | Exterior Lights          |
| Throttle Position (TP) Sensor              | Engine Performance       |
| Torque Converter Clutch Solenoid/Switch    | Engine Performance       |
| Traction Control Switch                    | Anti-Lock Brakes         |
| Trailer Tow Connector                      | Exterior Lights          |
| Trailer Tow Relay                          | Exterior Lights          |
| Transmission/Transaxle                     | Engine Performance       |
| Transmission Control Module (TCM)          | Engine Performance       |
|                                            | Starters                 |
| Transmission Range Sensor                  | Starters                 |
|                                            | Back-Up Lights           |
|                                            | Engine Performance       |

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Transmission Range Switch ..... Back-Up Lights  
Engine Performance  
Anti-Theft System  
Turn Signal Flasher ..... Exterior Lights  
Turn Signal Lights ..... Exterior Lights  
Twilight Sentinel Switch ..... Headlight Systems  
Daytime Running Lights  
Vapor Canister Leak Detection Pump ..... Engine Performance  
Vehicle Control Module (VCM) ..... Engine Performance  
Vehicle Dynamic Module ..... Electronic Suspension  
Vehicle Speed Control Servo ..... Cruise Control Systems  
Vehicle Speed Sensor ..... Data Link Connectors  
Analog Instrument Panels  
Cruise Control Systems  
Electronic Suspension  
Voltage Regulator ..... Generators & Regulators  
Water-In-Fuel Sensor ..... Engine Performance  
Analog Instrument Panels  
Wheel Speed Sensors ..... Anti-Lock Brakes  
Window Timer Module ..... Power Convertible Top  
Windshield Intermittent Wiper Relay ..... Wiper/Washer Systems  
Windshield Washer Motor ..... Wiper/Washer Systems  
Wiper Motor ..... Wiper/Washer Systems  
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