

# HOW TO USE SYSTEM WIRING DIAGRAMS

## Article Text

1987 Volkswagen Quantum/Quantum Syncro

For Volkswagen Technical Site

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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

AA

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
AA				

### 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 symbol 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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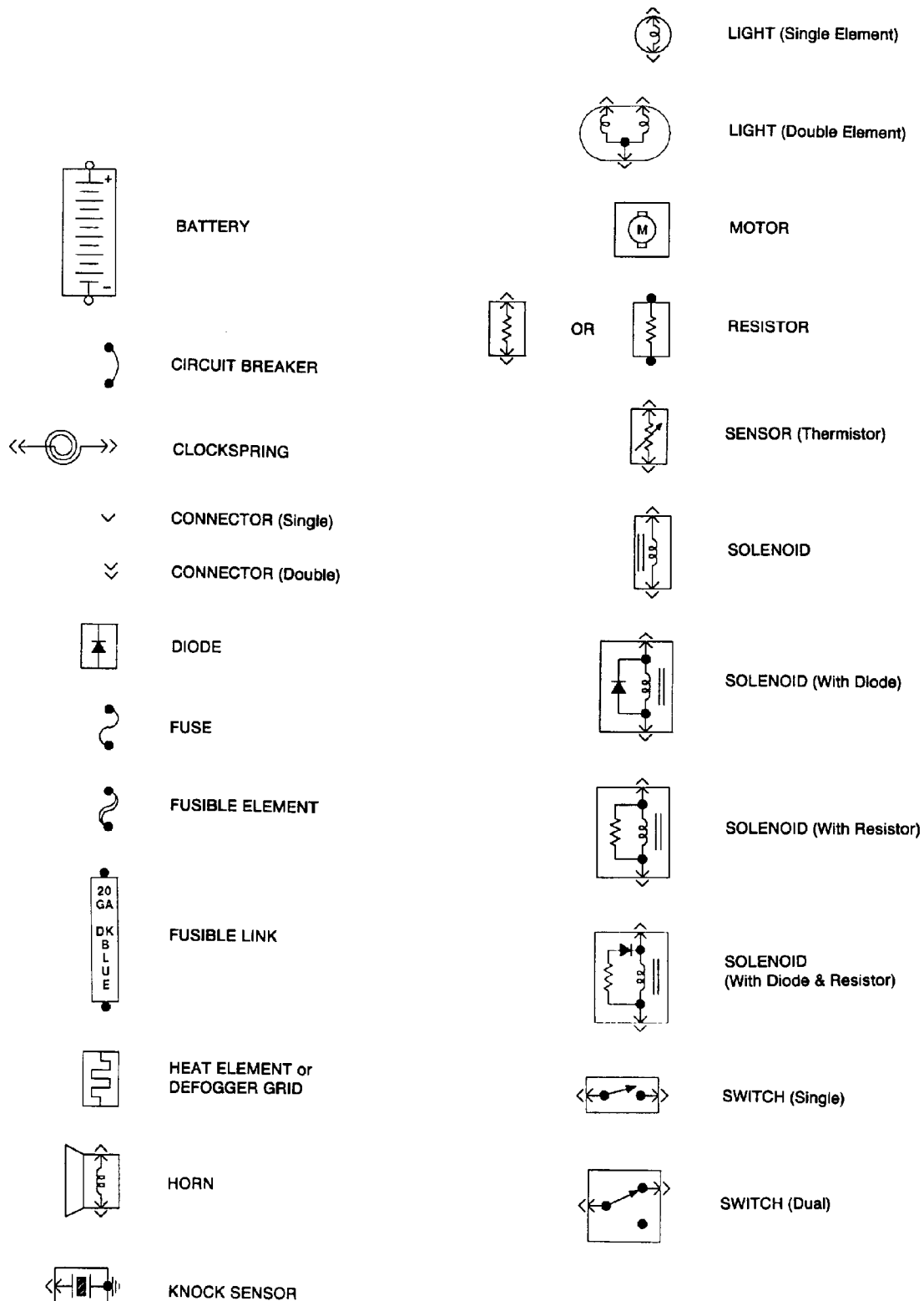


Fig. 1: Identifying Wiring Diagram Symbols

## 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

AA

Component	Wiring Diagram
ABS Electronic Control Unit .....	Anti-Lock Brakes 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 Starters
Autolamp Control Relay .....	Headlight Systems Daytime Running Lights
Automatic Shutdown (ASD) Relay .....	Engine Performance Generators & Regulators
Autostick Switch .....	Engine Performance
Auxiliary Battery Relay .....	Generators & Regulators
Back-Up Lights .....	Back-Up Lights 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  
AA

END OF ARTICLE