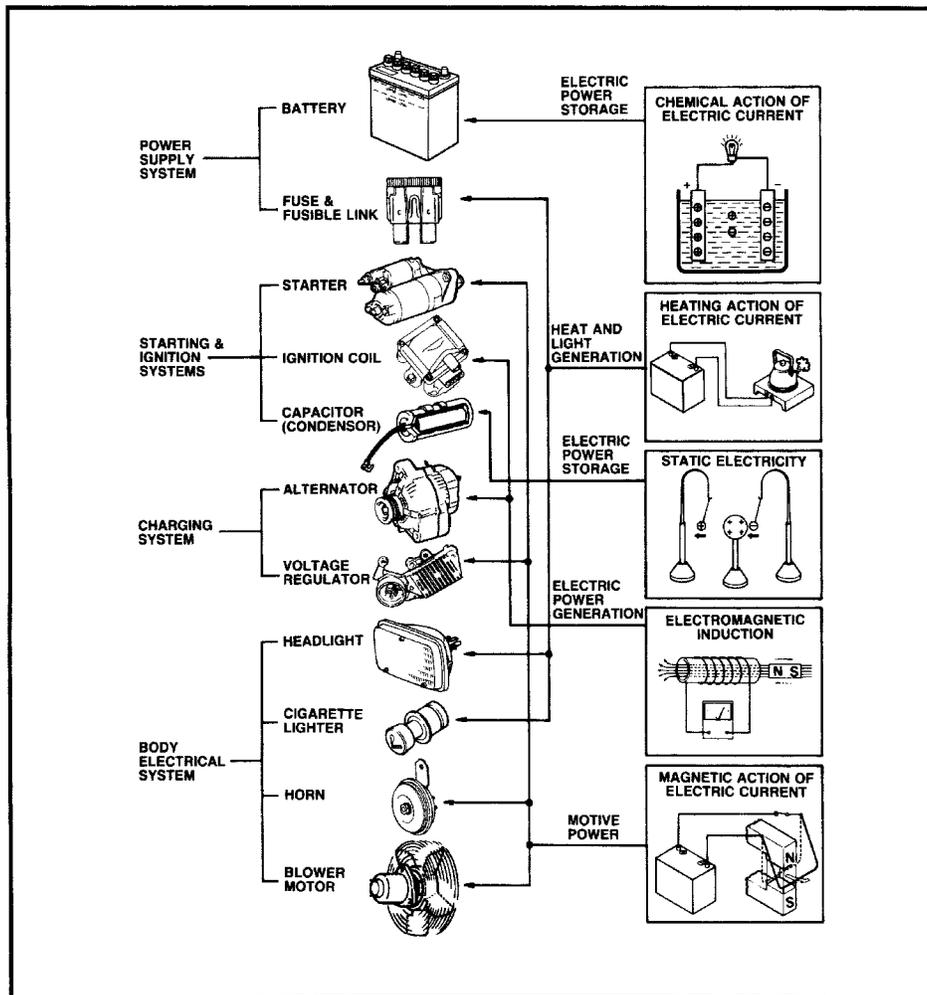


AUTOMOTIVE ELECTRICITY

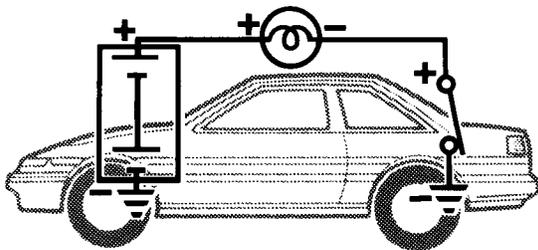
Overhead Transparencies - B & W Masters

AUTOMOTIVE ELECTRICITY



WWW.AUTOSHOP101.COM
Automotive Electronics Training and Resource Site

AUTOMOTIVE ELECTRICITY

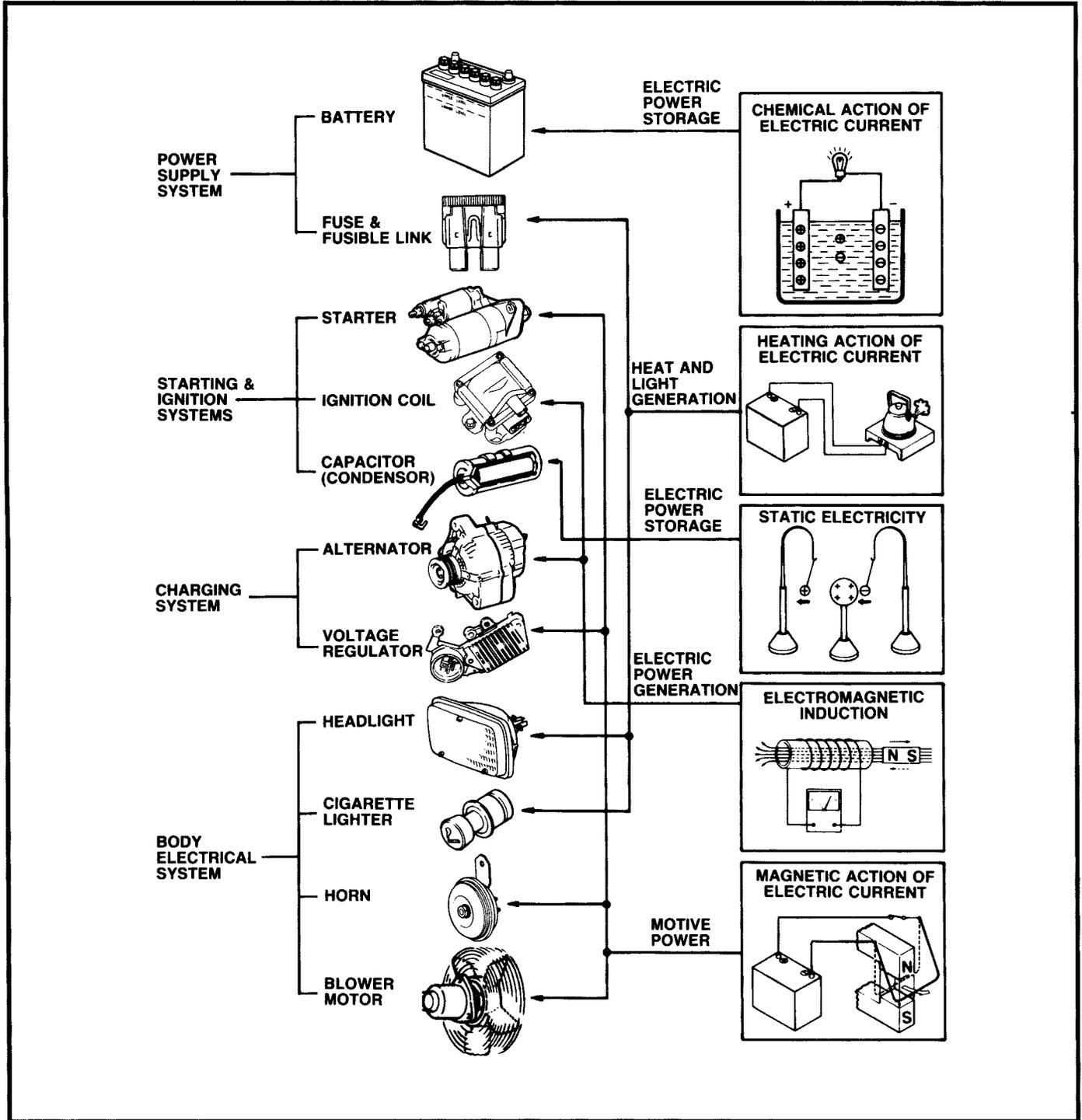


Automotive Electricity

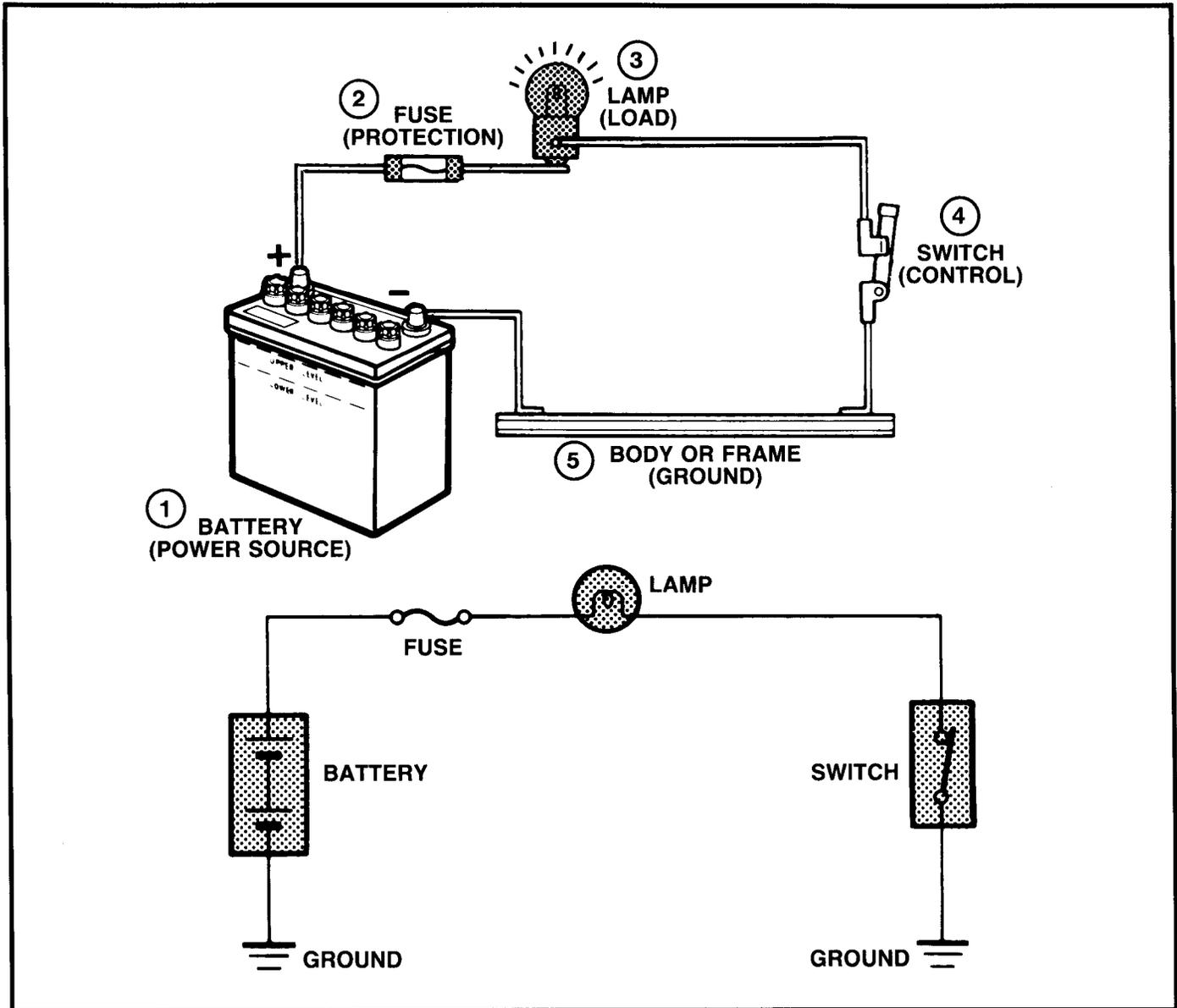
Electricity is put to work in many ways on today's Toyotas. A knowledge of component operation and wiring diagrams is needed for diagnosis and testing.

AUTOMOTIVE ELECTRICITY

ELECTRICAL COMPONENTS

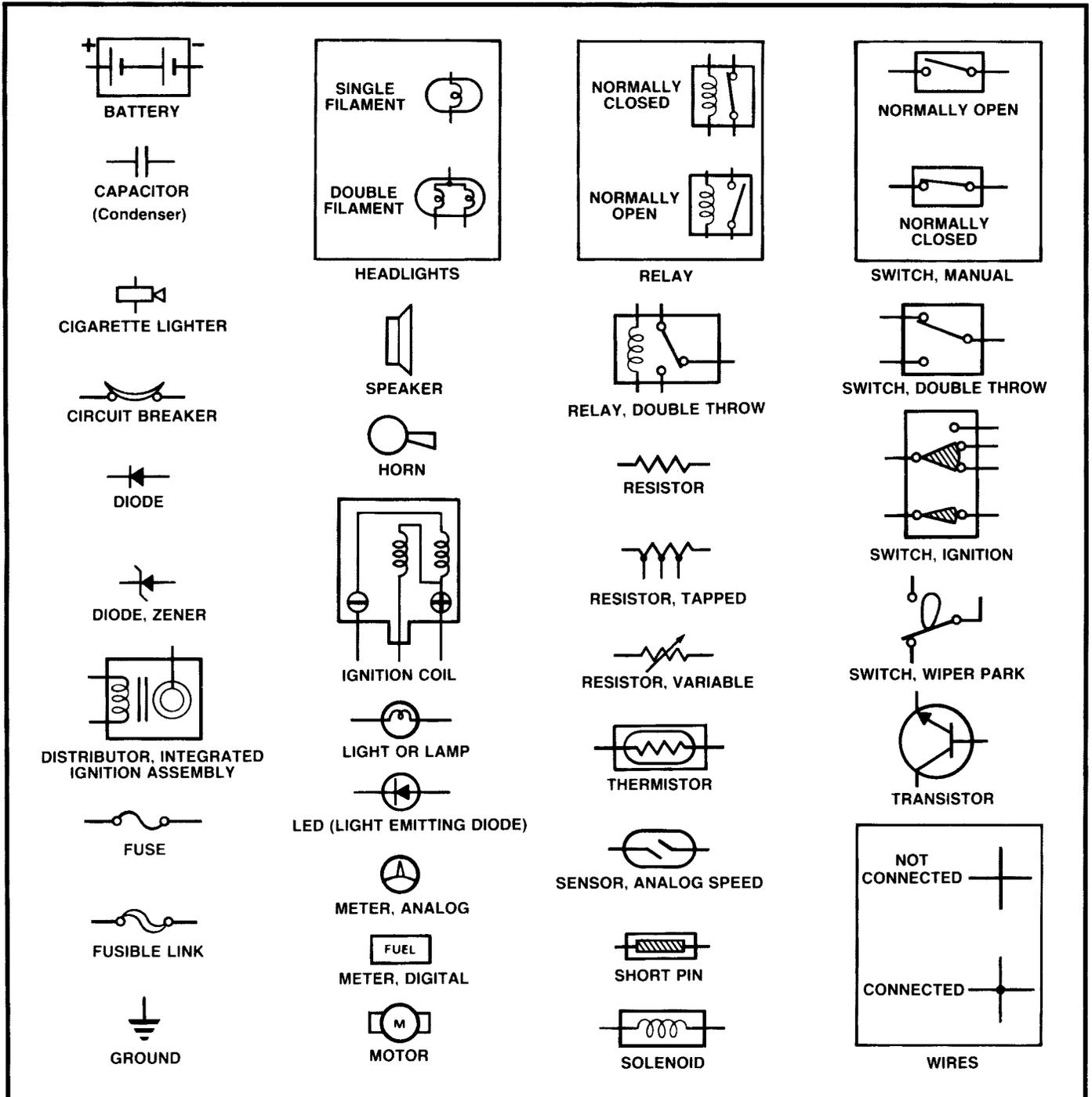


AUTOMOTIVE CIRCUITS



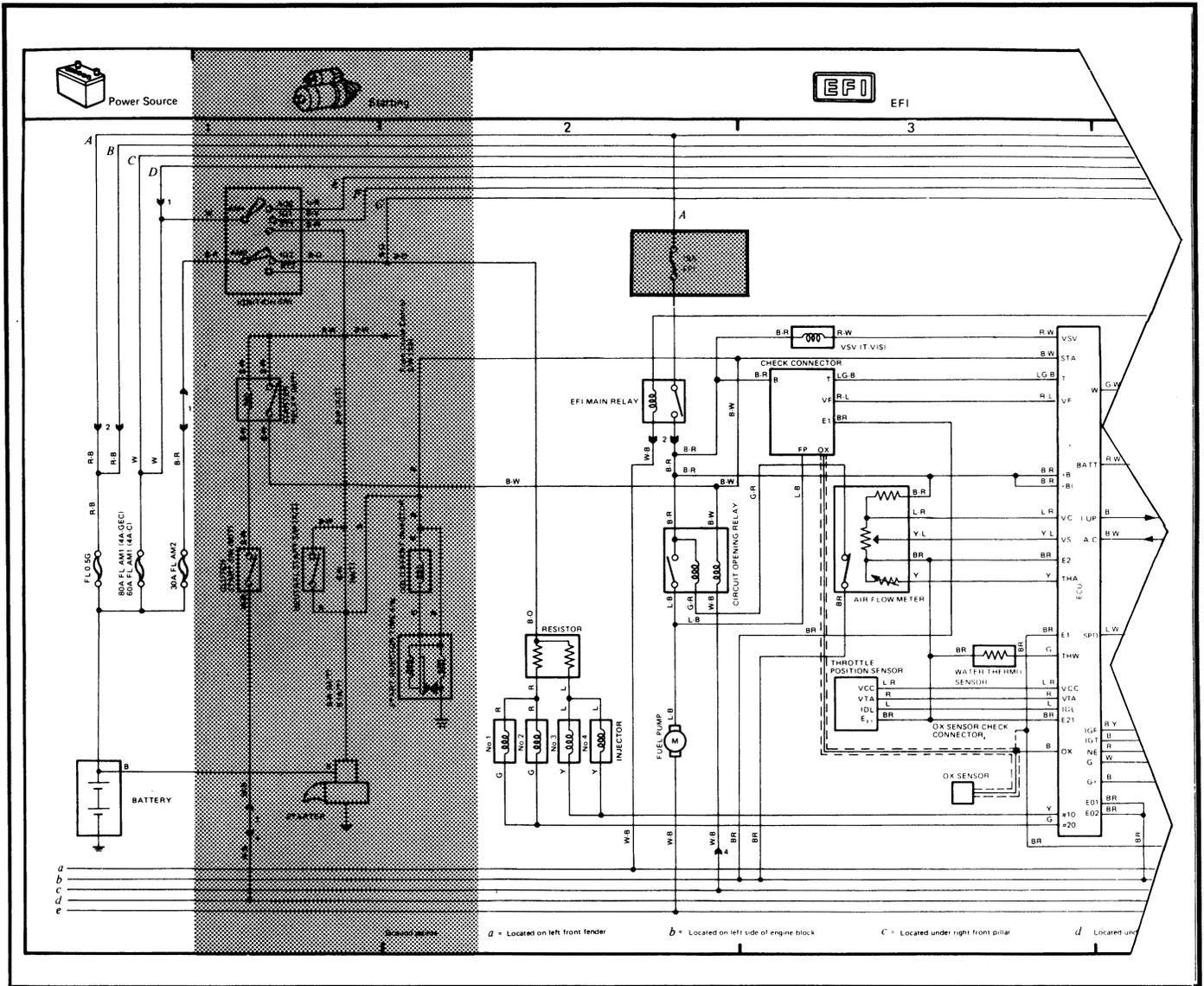
AUTOMOTIVE ELECTRICITY

ELECTRICAL SYMBOLS



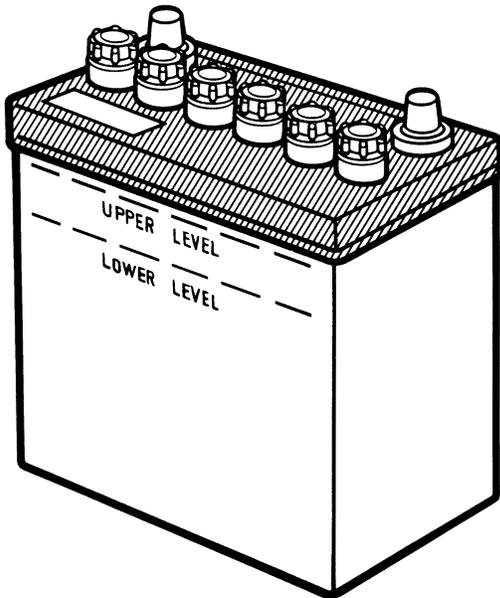
AUTOMOTIVE ELECTRICITY

ELECTRICAL SYMBOLS

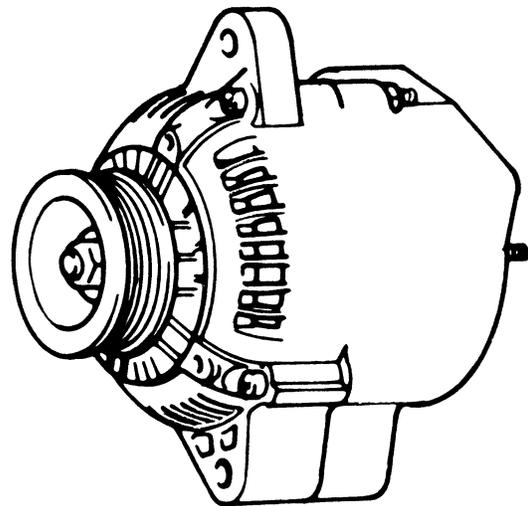


POWER SOURCES

12-VOLT BATTERY

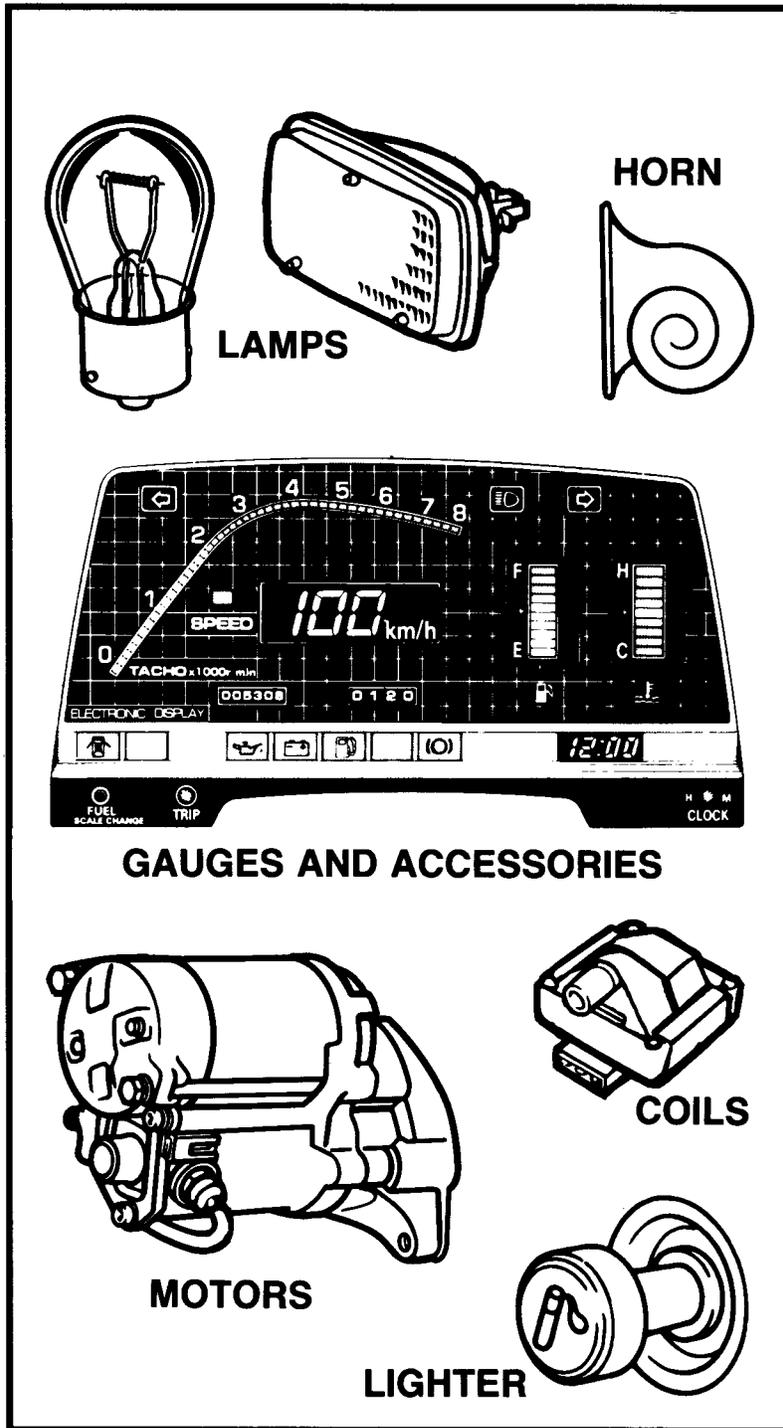


40-80 AMP ALTERNATOR

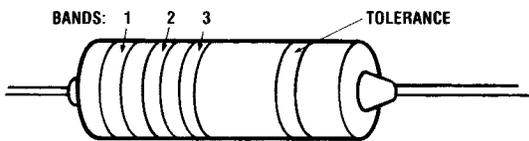


AUTOMOTIVE ELECTRICITY

TYPICAL ELECTRICAL LOADS



FIXED - VALUE RESISTORS



1/4-WATT



1/2-WATT



1-WATT

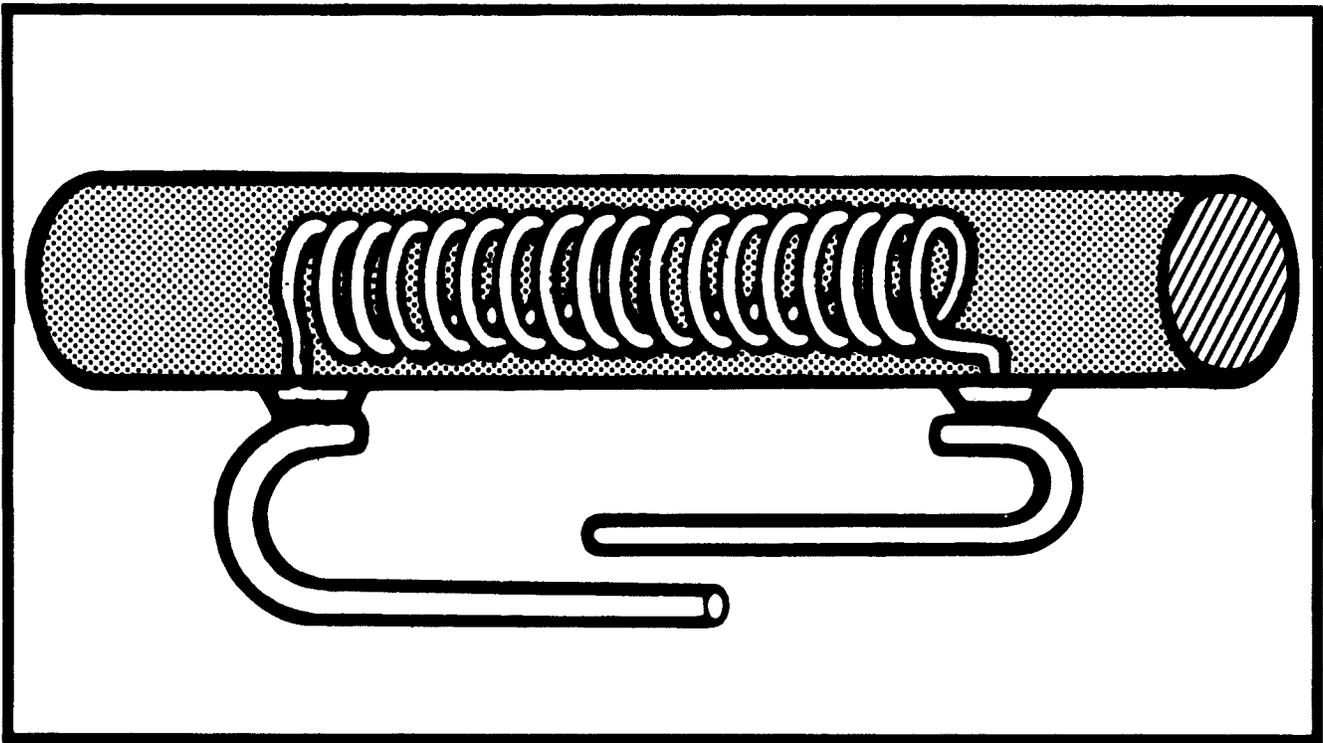


2-WATT

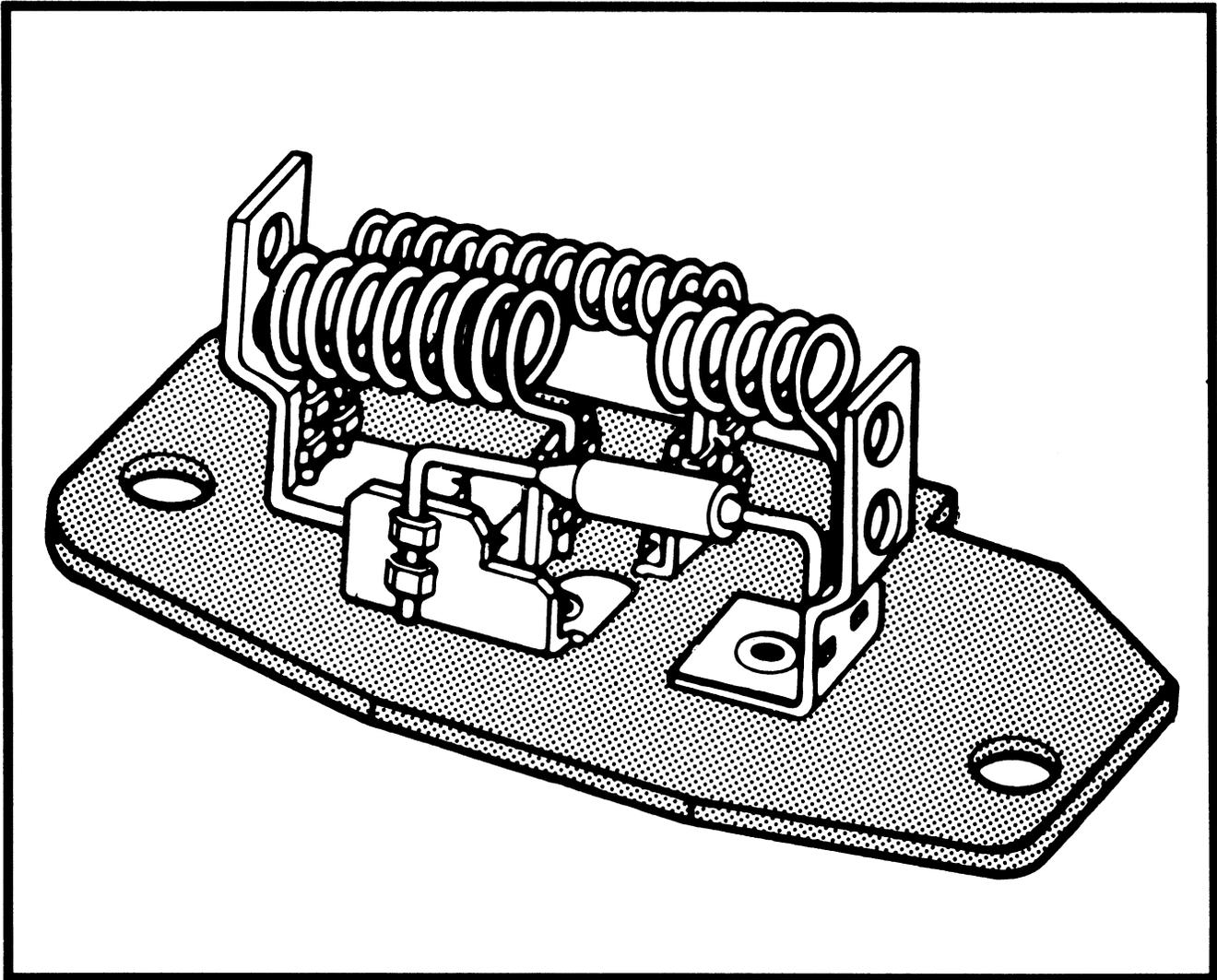
BAND 1 1ST DIGIT		BAND 2 2ND DIGIT		BAND 3 (NUMBER OF ZEROS)	
COLOR	DIGIT	COLOR	DIGIT	COLOR	ZEROS
BLACK	0	BLACK	0	BLACK	0
BROWN	1	BROWN	1	BROWN	1
RED	2	RED	2	RED	2
ORANGE	3	ORANGE	3	ORANGE	3
YELLOW	4	YELLOW	4	YELLOW	4
GREEN	5	GREEN	5	GREEN	5
BLUE	6	BLUE	6	BLUE	6
VIOLET	7	VIOLET	7	VIOLET	7
GRAY	8	GRAY	8	GRAY	8
WHITE	9	WHITE	9	WHITE	9

RESISTANCE TOLERANCE	
COLOR	TOLERANCE
NONE	±20%
SILVER	±10%
GOLD	±5%
RED	±2%
BROWN	±1%

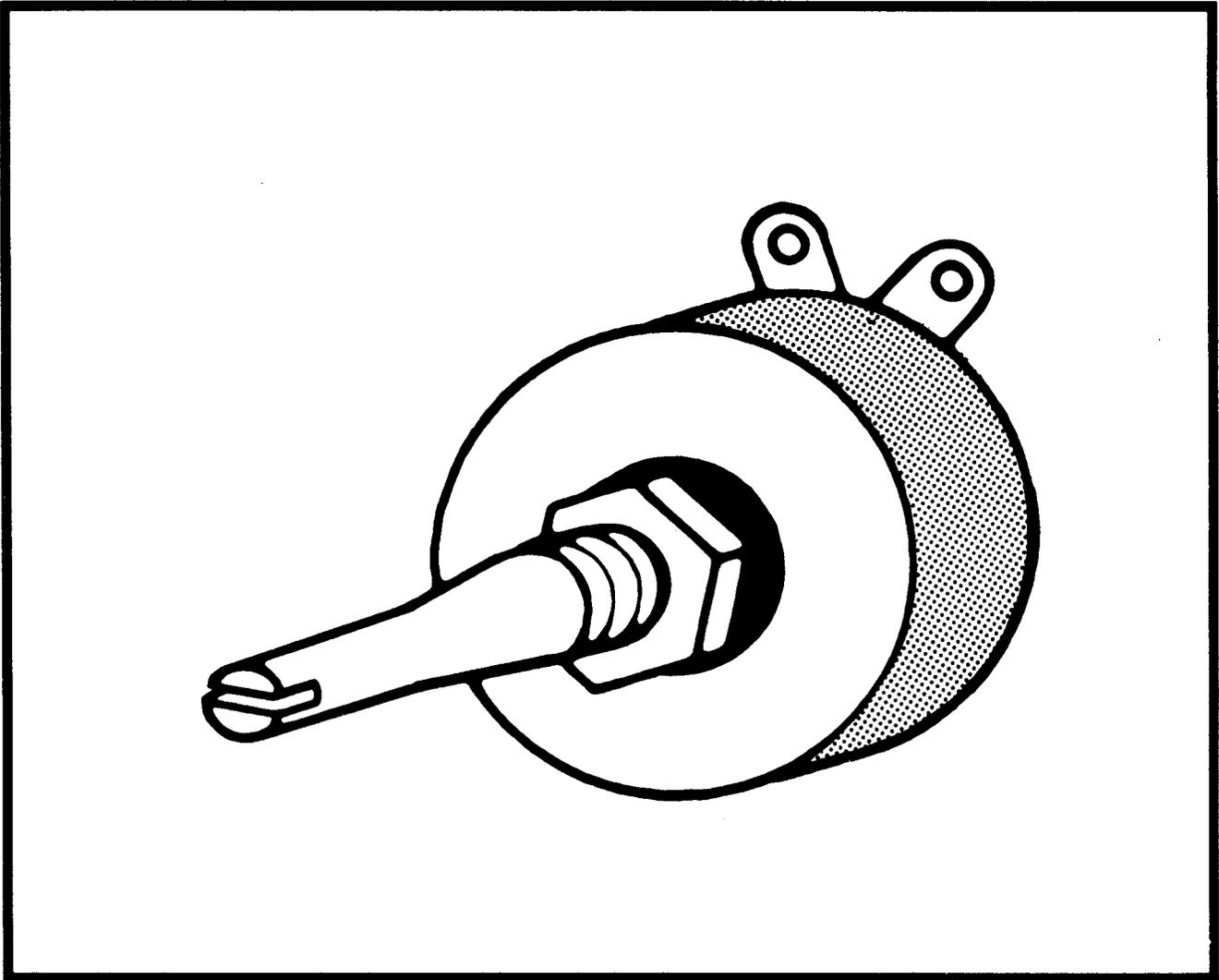
WIRE - WOUND RESISTORS



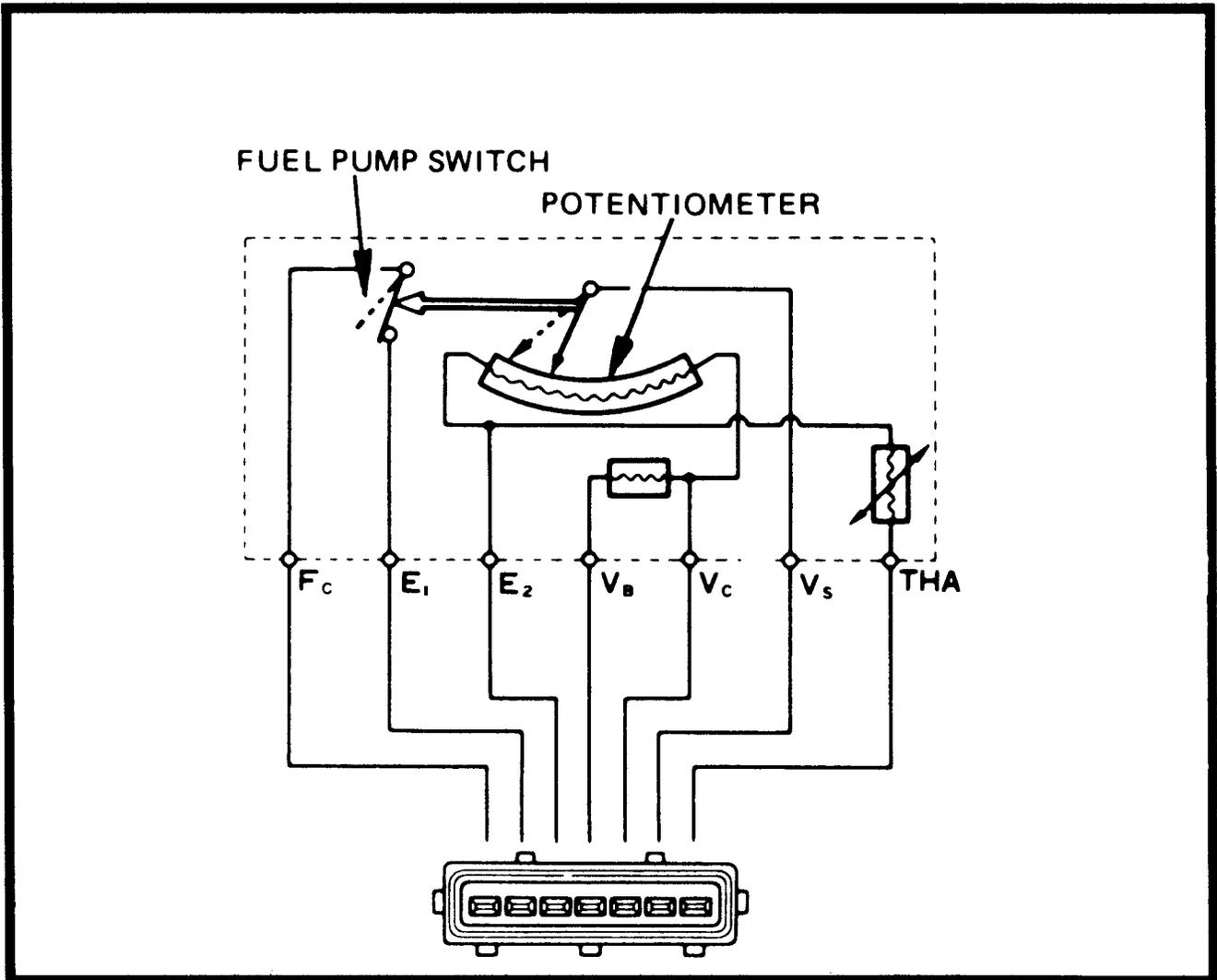
STEPPED RESISTORS



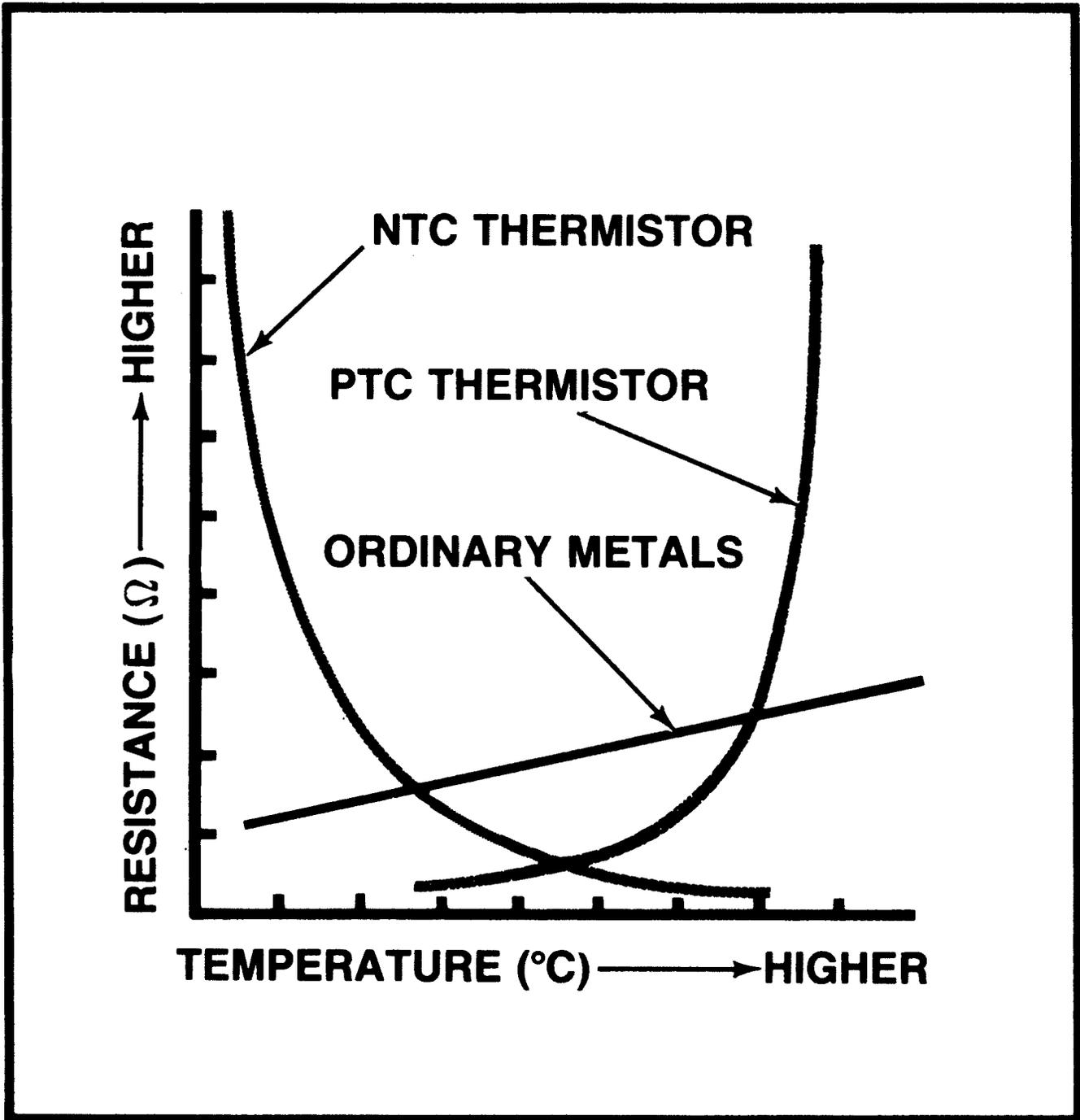
RHEOSTAT - VARIABLE RESISTOR



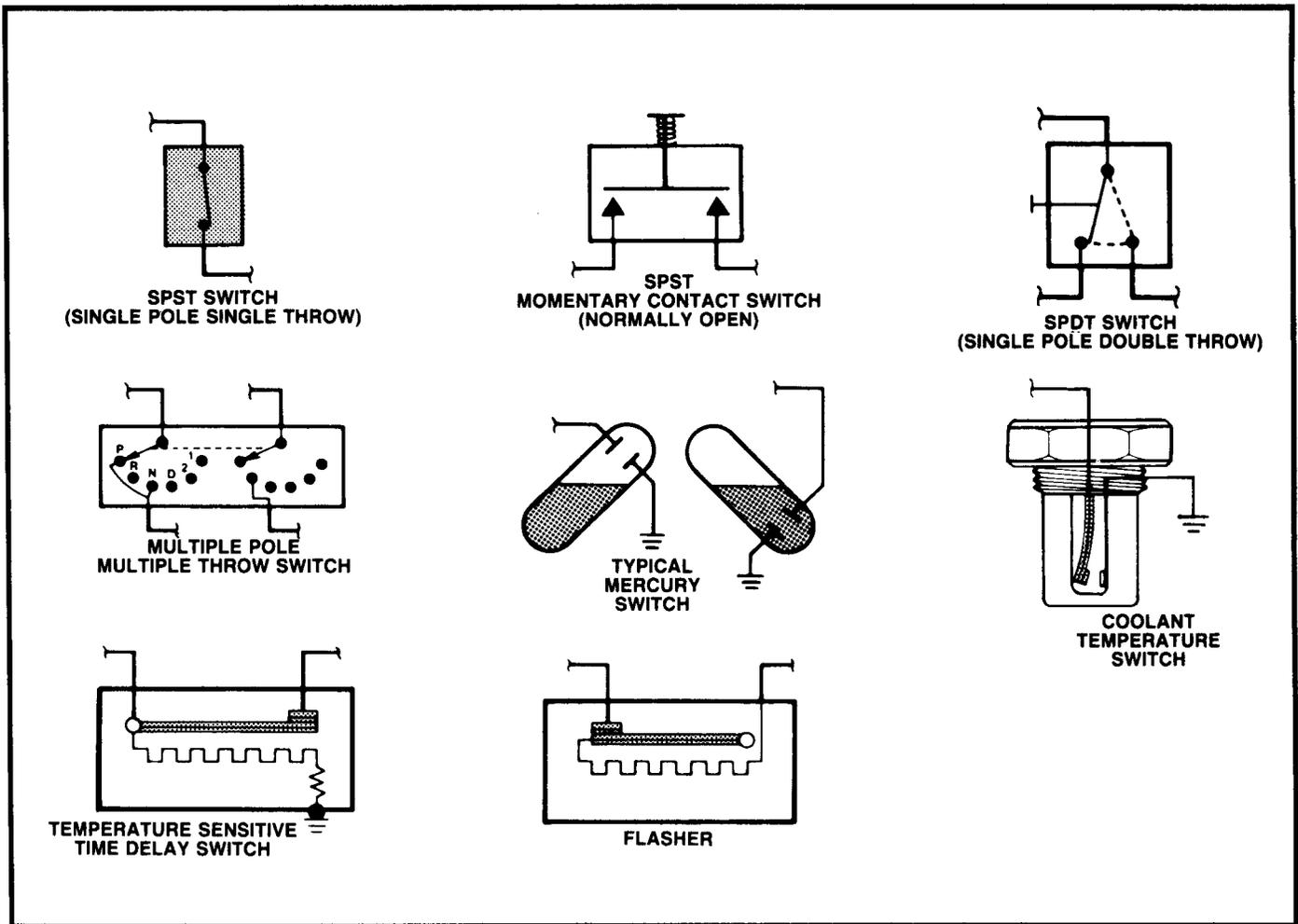
POTENTIOMETER- VARIABLE RESISTOR



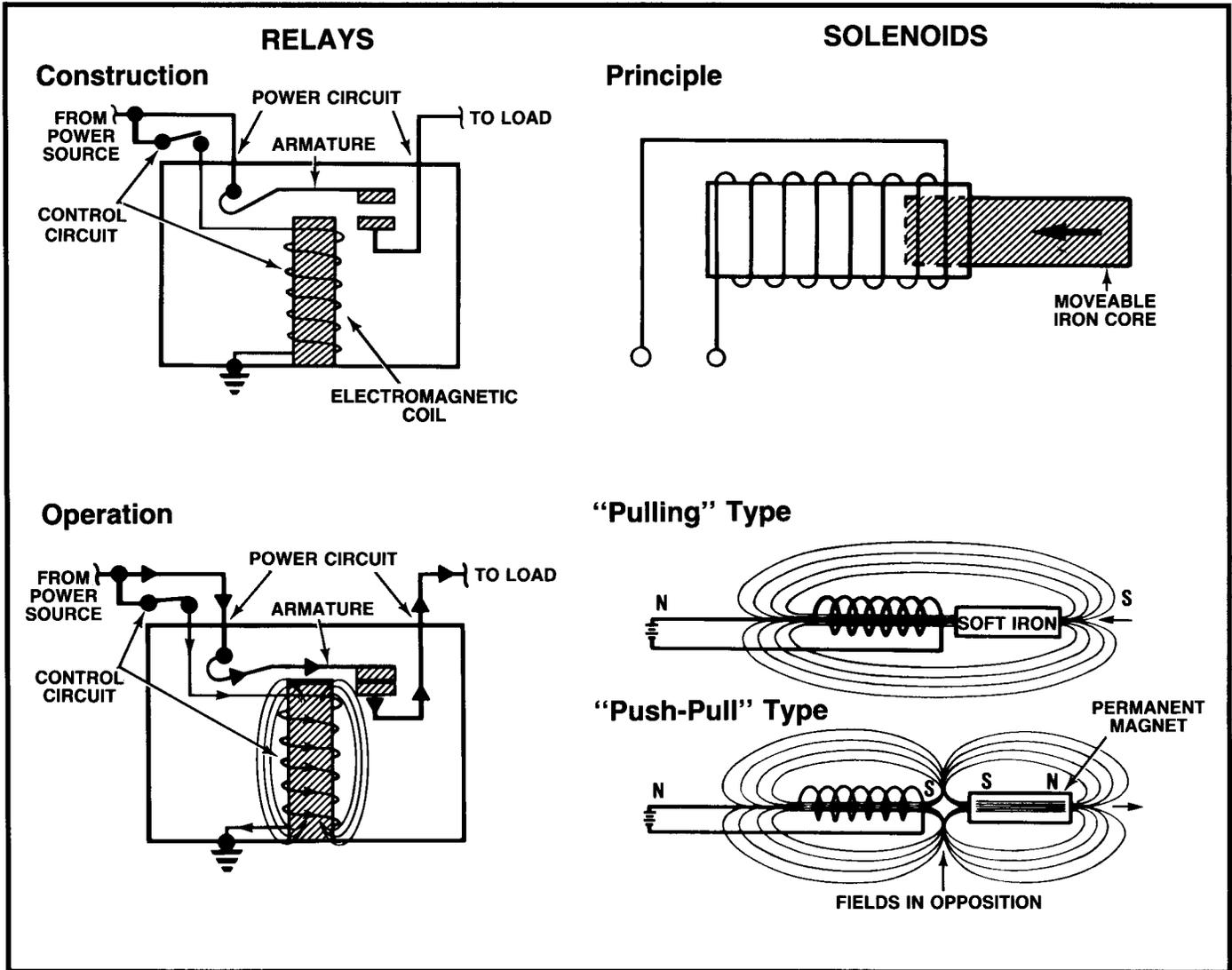
NTC AND PTC THERMISTORS



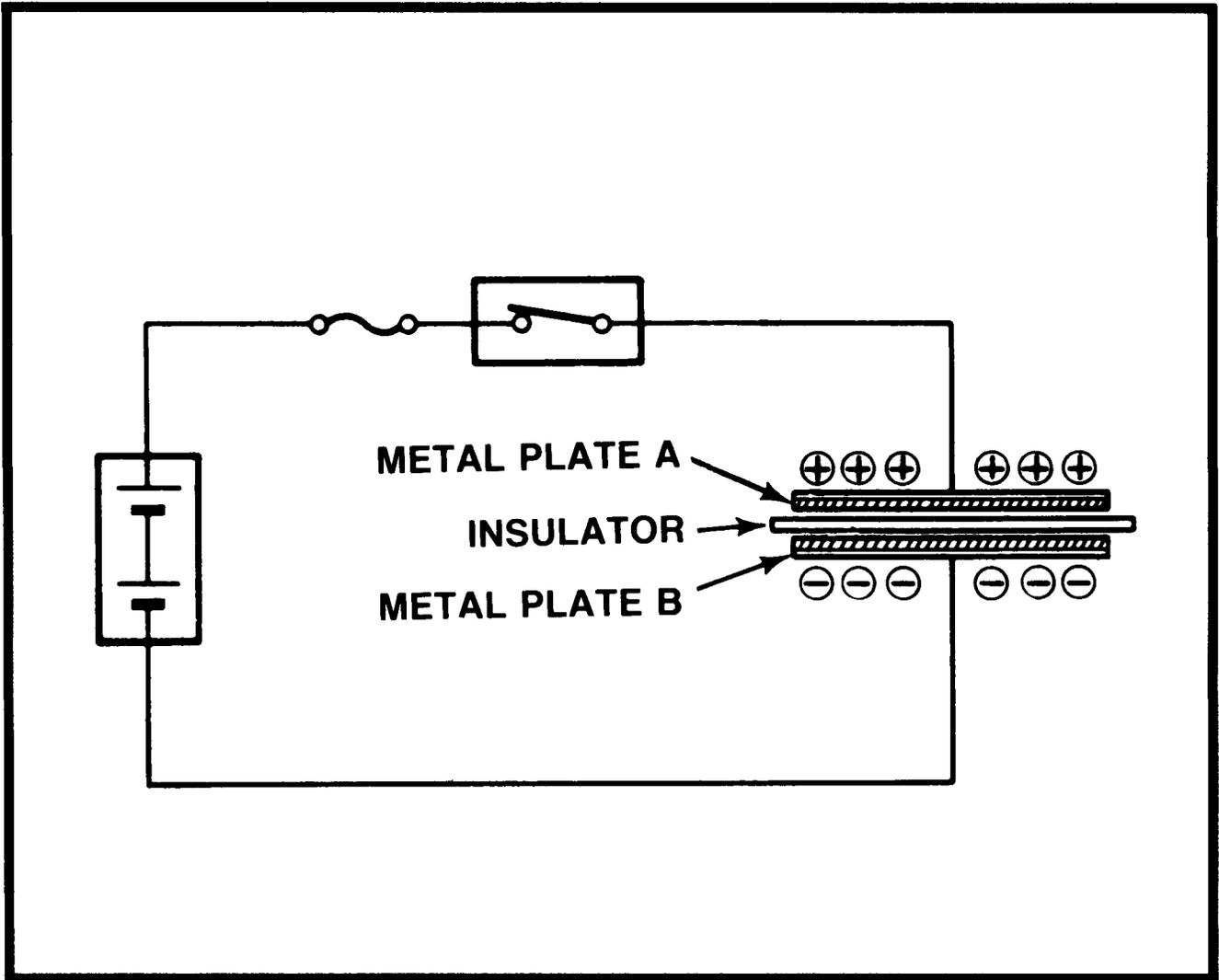
SWITCHES



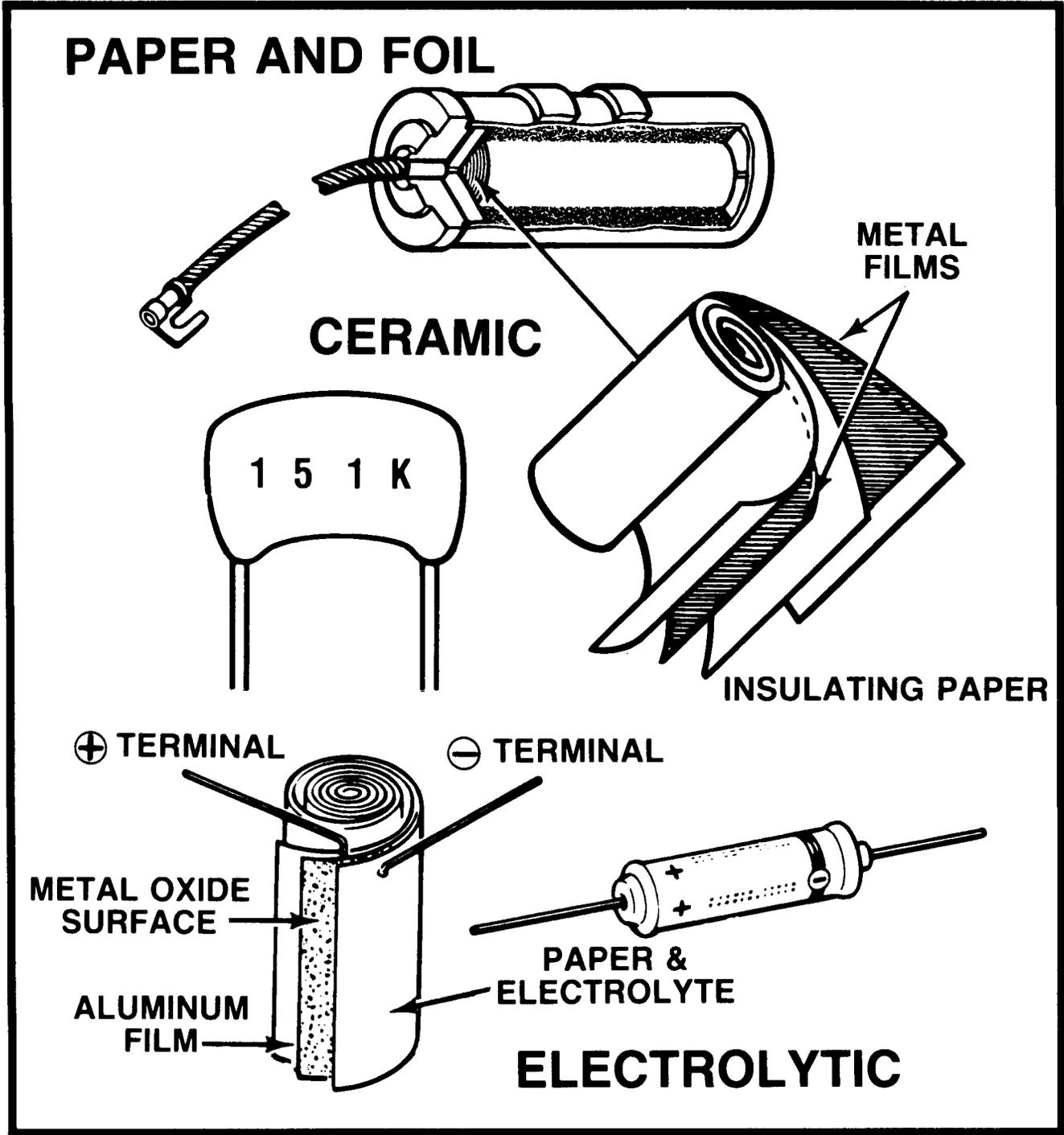
RELAYS AND SOLENOIDS



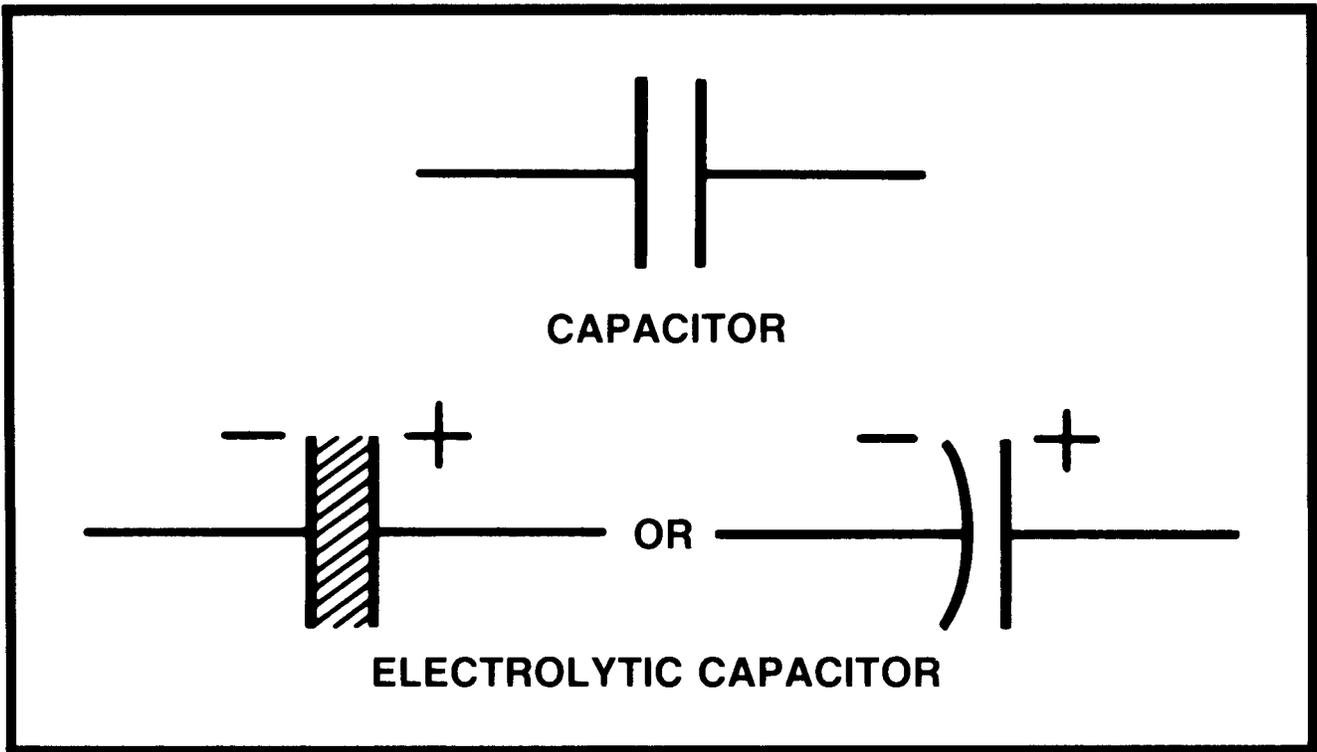
CAPACITORS



CAPACITOR TYPES



CAPACITOR SYMBOLS

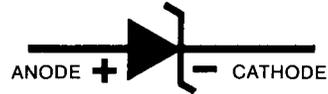


SEMICONDUCTORS - DIODES

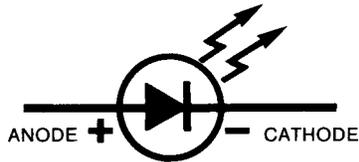
ORDINARY DIODE



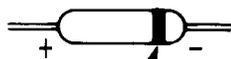
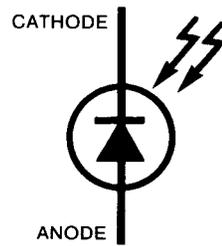
ZENER DIODE



LIGHT-EMITTING DIODE



PHOTODIODE



COLOR LINE

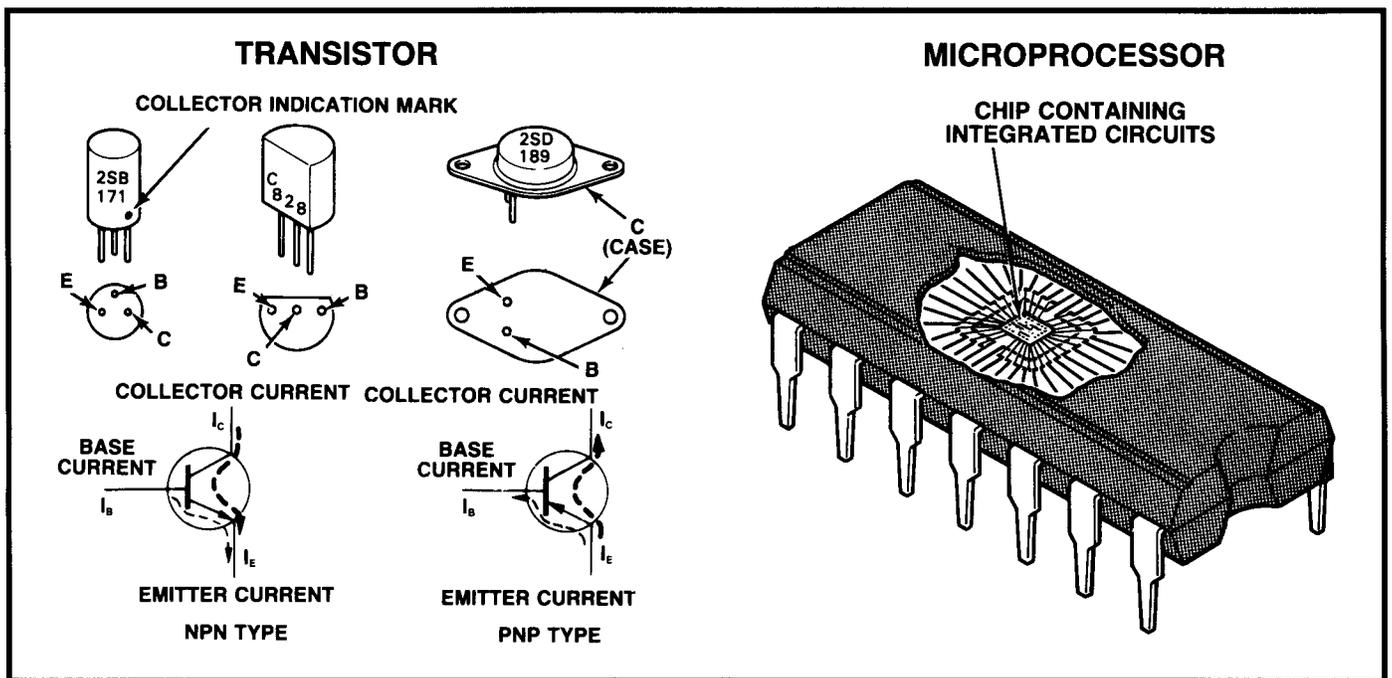


DOT



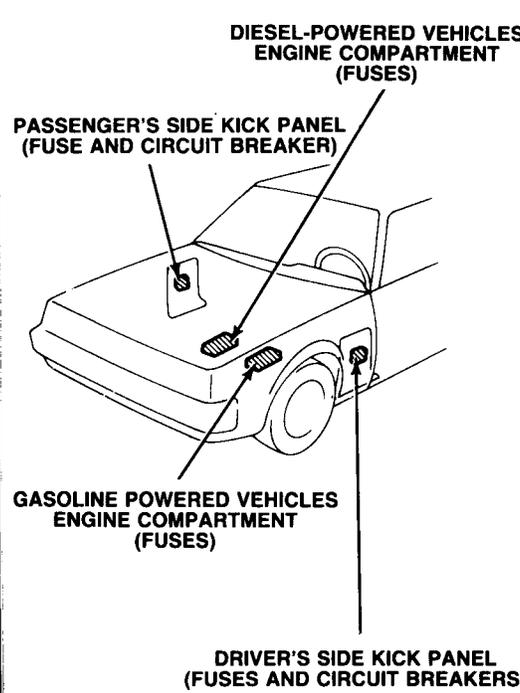
GRAPHIC SYMBOL

SEMICONDUCTORS - TRANSISTORS



PROTECTION DEVICES Fuses

FUSE AND CIRCUIT BREAKER LOCATIONS



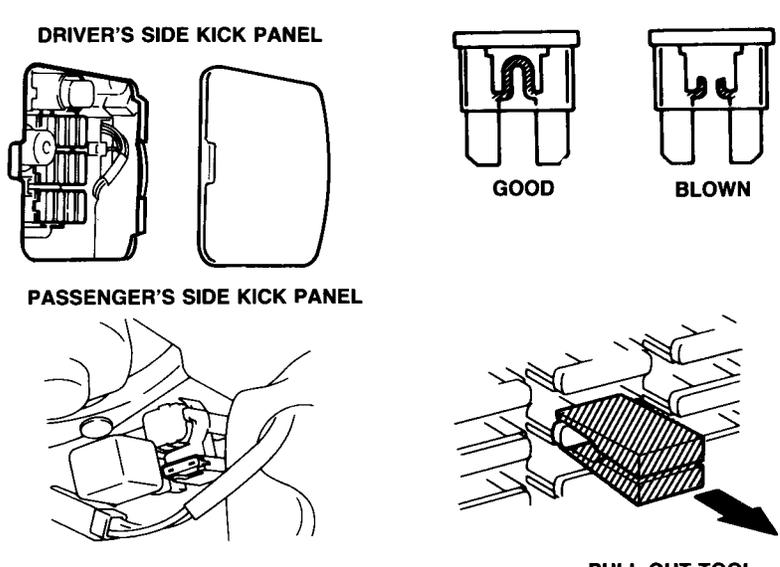
DIESEL-POWERED VEHICLES
ENGINE COMPARTMENT
(FUSES)

PASSENGER'S SIDE KICK PANEL
(FUSE AND CIRCUIT BREAKER)

GASOLINE POWERED VEHICLES
ENGINE COMPARTMENT
(FUSES)

DRIVER'S SIDE KICK PANEL
(FUSES AND CIRCUIT BREAKERS)

CHECKING AND REPLACING FUSES



DRIVER'S SIDE KICK PANEL

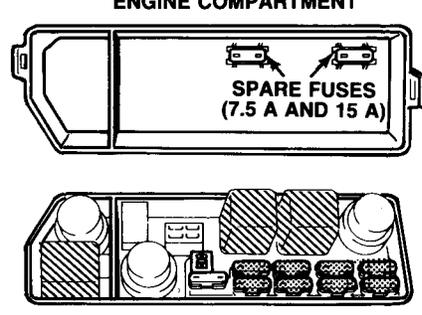
PASSENGER'S SIDE KICK PANEL

GOOD

BLOWN

PULL-OUT TOOL

ENGINE COMPARTMENT

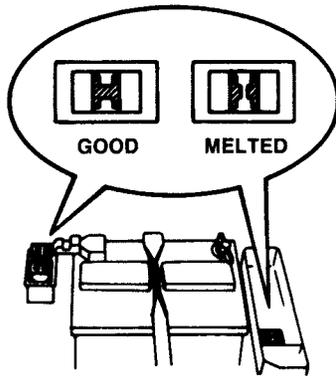


SPARE FUSES
(7.5 A AND 15 A)

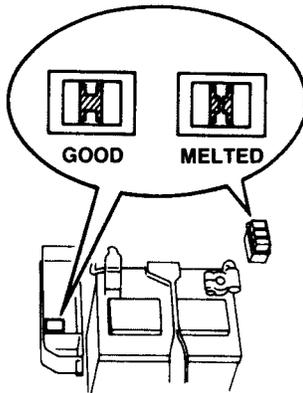
PROTECTION DEVICES Fusible Links and Circuit Breakers

CHECKING THE FUSIBLE LINKS

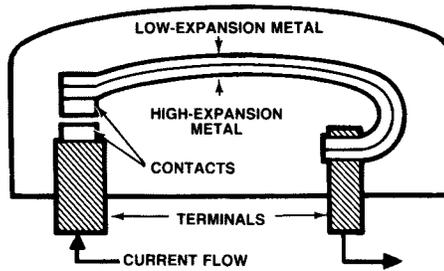
GASOLINE-POWERED VEHICLES



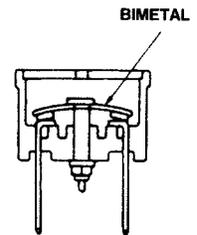
DIESEL-POWERED VEHICLES



CHECKING CIRCUIT BREAKERS



AUTOMATICALLY RESET TYPE



MANUALLY RESET TYPE



Resetting manually-reset type circuit breakers

- (a) Insert a pin into the reset hole and push it.
- (b) Using an ohmmeter, check that there is continuity between both terminals of the circuit breaker.

If there is no continuity, replace the circuit breaker.