

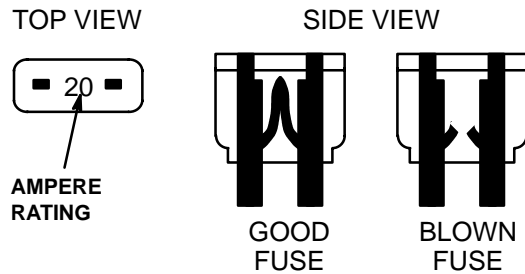
# 11-1 FUSE PANEL/CIRCUIT PROTECTION

2001 F53

## CIRCUIT PROTECTION DEVICES

Electrical circuits on this vehicle may be protected by fuses, fusible links, fusible link cartridges, circuit breakers, or a combination of these devices.

### BLADE TYPE FUSE

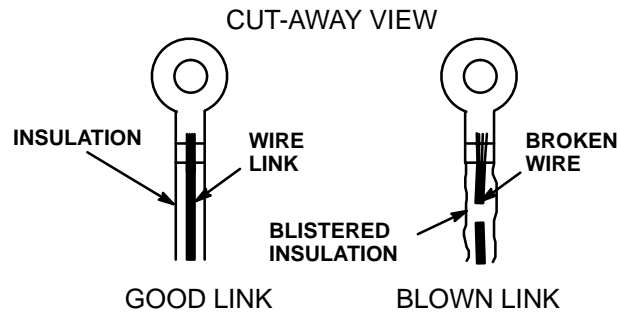


Blade type fuses have a transparent plastic housing. To check a fuse, pull it from the fuse panel and look at the fuse element through the housing. Always replace a blown fuse with a new fuse that has the same ampere rating.

The ampere rating of a blade type fuse can also be determined by following the color code shown here:

BLADE FUSE COLOR CODING	
AMPERE RATING	HOUSING COLOR
4	Pink
5	Tan
10	Red
15	Light Blue
20	Yellow
25	Natural
30	Light Green

### FUSIBLE LINK



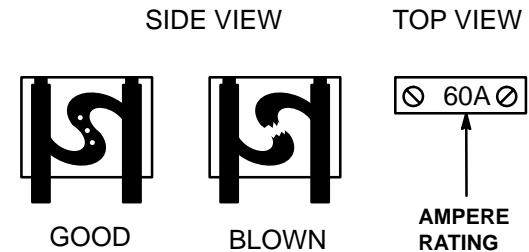
Fusible links are short lengths of wire that are smaller in diameter than the wires they are protecting. Fusible link wire is covered with a special thick, non-flammable insulation. An overload condition causes the insulation to blister. If the overload condition continues, the wire link will melt. To check a fusible link, look for blistered insulation. If the insulation is okay, pull lightly on the wire; if the fusible link stretches, the wire has melted.

When replacing fusible links, first cut the protected wire where it is connected to the fusible link. Then, tightly crimp or solder the new link to the protected wire.

Fusible links are often identified by color coding of the insulation, as shown here:

FUSIBLE LINK COLOR CODING	
WIRE LINK SIZE	INSULATION COLOR
20 GA	Blue
18 GA	Brown or Red
16 GA	Black or Orange
14 GA	Green
12 GA	Gray

### MAXI-FUSE CARTRIDGE



Maxi-fuse cartridges have a transparent colored plastic housing. To check a maxi-fuse cartridge, look at the fuse element through the side of the housing.

To replace a maxi-fuse cartridge, pull it from the fuse box or panel. Always replace a blown maxi-fuse cartridge with a new one having the same ampere rating.

The ampere rating of a maxi-fuse cartridge can also be determined by following the color code shown here:

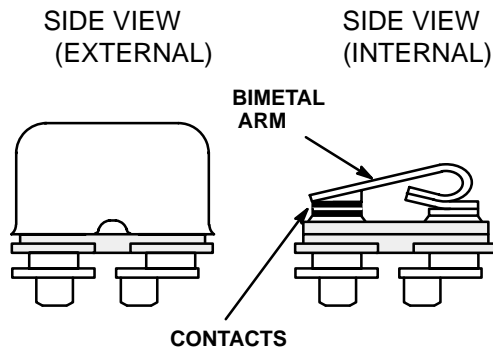
MAXI-FUSE CARTRIDGE COLOR CODING	
AMPERE RATING	HOUSING COLOR
30	Green
40	Orange
50	Red
60	Blue

## CIRCUIT BREAKER

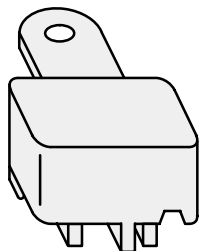
Some circuits are protected by circuit breakers (abbreviated "c. b." in fuse chart). They can be Fuse Panel mounted or in-line. Like fuses, they are rated in amperes.

Each circuit breaker conducts current through an arm made of two types of metal bonded together (bimetal arm). If the arm starts to carry too much current, it heats up. As one metal expands faster than the other the arm bends, opening the contacts. Current flow is broken. A circuit breaker can be the cycling or non-cycling type.

### FUSE PANEL MOUNTED CYCLING TYPE

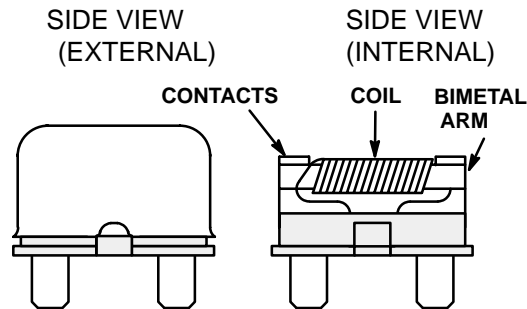


### IN-LINE MOUNTED CYCLING TYPE

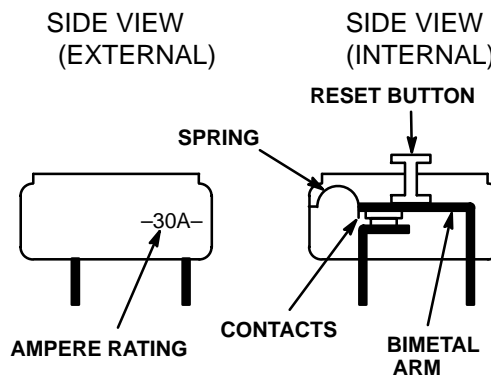


In the cycling type, the bimetal arm cools and straightens out. This cycle repeats as long as the overcurrent exists and power is applied.

### FUSE PANEL MOUNTED NON-CYCLING TYPE



### FUSE PANEL MOUNTED MANUAL RESET TYPE

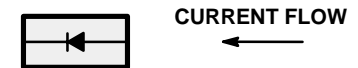


Two types of non-cycling circuit breakers are used; one is reset by removing power from the circuit, and the other is reset by depressing a reset button.

In the first type, there is a coil wrapped around the bimetal arm. When an overcurrent exists and the contacts open, a small current passes through the coil. This current through the coil is not enough to operate a load, but it does heat up both the coil and the bimetal arm. This keeps the arm in the open position until power is removed.

In the second type, a spring pushes the bimetal arm down and holds the contacts together. When an overcurrent condition exists and the bimetal arm heats up, the bimetal arm bends enough to overcome the spring and the contacts snap open. The contacts stay open until the reset button is pushed and the contacts snap together again.

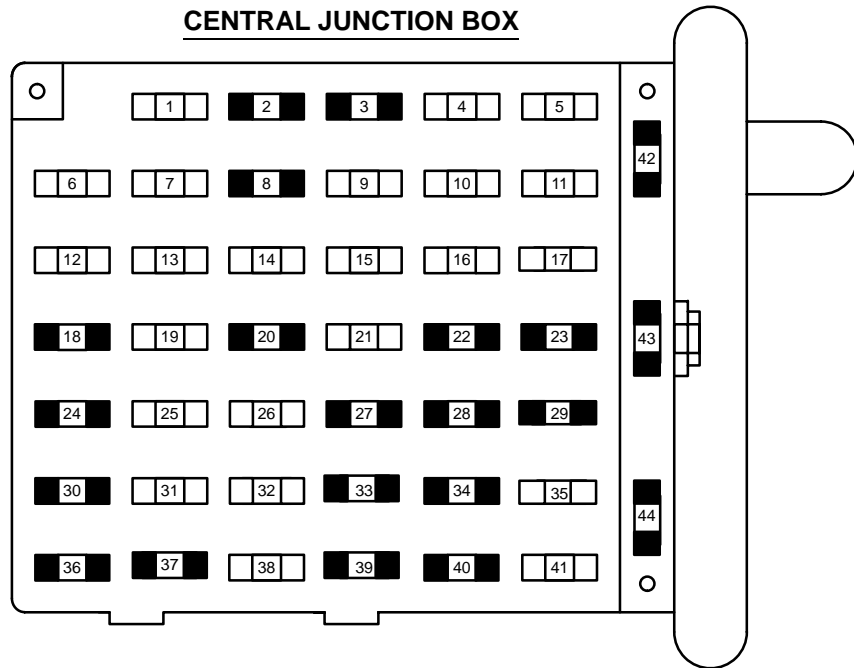
## DIODE



Diodes are electrical devices that permit current to flow in one direction only. The current flows in the direction indicated by the arrow.

# 11-3 FUSE PANEL/CIRCUIT PROTECTION

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Fuse Position	Amps	Circuits Protected
1	20	Right Turn Signal Relay Coil, Left Turn Signal Relay Coil, Right Turn Indicator, Left Turn Indicator, Body Builder Right Rear Turn/Stop Feed, Body Builder Left Rear Turn/Stop Feed
2	-	NOT USED
3	-	NOT USED
4	15	Interior Lamp Relay, Interior Lamps
5	10	Accessory Feed #1
6	10	Trailer LH Turn/Stop Lamp
7	15	Blower Motor Relay
8	-	NOT USED
9	20	Trailer Tow Electric Brake Controller Feed, Body Builder Right Rear Turn/Stop Feed, Body Builder Left Rear Turn/Stop Feed, Body Builder Stoplamp Feed
10	5	Instrument Cluster, Hydromax Lamp
11	30	Windshield Wiper/Washer Module, Wiper Feed
12	10	Trailer Tow Right Stop/Turn Feed
13	10	4 WABS Module
14	10	Instrument Cluster, Hydro-Max Monitor, Warning Chime Module, Transmission Control Switch
15	15	LH Turn Relay, LH Turn Lamps
16	20	Body Builder Battery Feed
17	5	Body Builder Radio Feed
18	-	NOT USED
19	5	DRL On/Off Relay
20	-	NOT USED
21	15	RH Turn Relay, RH Turn Lamps

## Power Distribution

The Generator and Battery are connected together at the Starter Relay hot terminal. Other circuits originate at the Starter Relay hot terminal and are protected by fuse links. Low power circuits are also protected by fuses.

The Ignition Switch and Main Light Switch are powered at all times, as are fuses 5 and 9. The other fuses are powered through the Ignition Switch or the Main Light Switch.

Fuse Value Amps	Color Code
4	Pink
5	Tan
10	Red
15	Light Blue
20	Yellow
25	Natural
30	Light Green

# FUSE PANEL/CIRCUIT PROTECTION

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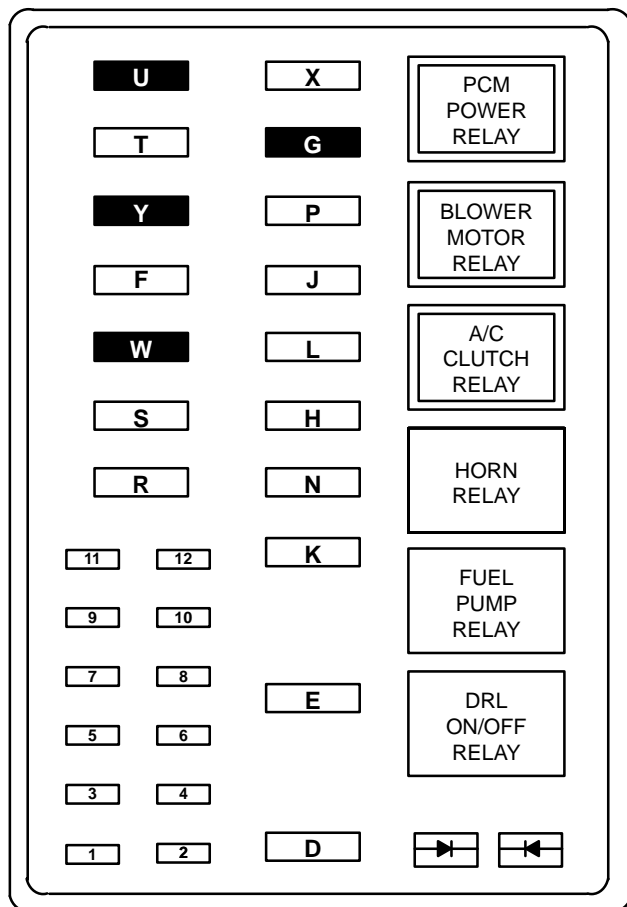
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Fuse Position	Amps	Circuits Protected
22	–	NOT USED
23	–	NOT USED
24	–	NOT USED
25	10	Body Builder Right Headlamp (Low Beam)
26	10	Shift Lock Actuator, Speed Control Servo
27	–	NOT USED
28	–	NOT USED
29	–	NOT USED
30	–	NOT USED
31	10	Body Builder Left Headlamp (Low Beam)
32	10	Digital Transmission Range (DTR) Sensor (Reversing Lamp Feed), Reversing Lamps
33	–	NOT USED
34	–	NOT USED
35	20	Headlamp High Beam, High Beam Indicator
36	–	NOT USED
37	–	NOT USED
38	10	Body Builder Accessory Feed #2 (Run)
39	–	NOT USED
40	–	NOT USED
41	10	Headlamp Switch, Dimmable Light, Body Builder Feed, Instrument Cluster Illumination
42	–	NOT USED
43	–	NOT USED
44	–	NOT USED

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## BATTERY JUNCTION BOX



HIGH CURRENT FUSE VALUE AMPS	COLOR CODE
20A PLUG-IN	YELLOW
30A PLUG-IN	GREEN
40A PLUG-IN	ORANGE
50A PLUG-IN	RED
60A PLUG-IN	BLUE

Fuse Position	Amps	Circuits Protected
1	5 (Mini)	Hydro-Max Module
2	10 (Mini)	A/C Clutch Relay, A/C Clutch
3	20 (Mini)	PCM OBD2 Functions, 4R100 Transmission
4	5 (Mini)	Powertrain Control Module (PCM)
5	15 (Mini)	PCM Power, MAF Sensor, Fuel Injectors, Fuel Pump Relay Coil, A/C Clutch Relay Coil
6	20 (Mini)	Park Lamp Feeds, Warning Chime Module
7	15 (Mini)	Digital Transmission Range Sensor (DTRS), Starter Relay Coil
8	10 (Mini)	Brake Pressure Switch, Hydro-max Module, Speed Control Servo, Powertrain Control Module (PCM), ABS Module, Brake Shift Interlock Actuator
9	5 (Mini)	Charge Warning Indicator
10	20 (Mini)	Daytime Running Lamps
11	30 (Mini)	Ignition Coils, Radio Noise Capacitors #1 and #2, Powertrain Control Module Relay
12	20 (Mini)	Trailer Running Lamps, Trailer Reversing Lamps
D	40 (Maxi)	PCM Power Relay
E	20 (Maxi)	Fuel Pump Relay, Fuel Pump Motor
F	60 (Maxi)	4 WABS Module
G	-	NOT USED
H	40 (Maxi)	Interior Lamp Relay
J	60 (Maxi)	Ignition Switch
K	20 (Maxi)	Cigar Lighter, Data Link
L	50 (Maxi)	Ignition Switch
N	40 (Maxi)	Blower Motor Relay, Blower Motor Feed

# FUSE PANEL/CIRCUIT PROTECTION

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<b>Fuse Position</b>	<b>Amps</b>	<b>Circuits Protected</b>
P	30 (Maxi)	Multifunction Switch, Main Light Switch
R	30 (Maxi)	Electronic Brake Controller Feed
S	60 (Maxi)	Central Junction Box Feed
T	20 (Maxi)	Horn Relay, Horn
U	–	NOT USED
W	–	NOT USED
X	60 (Maxi)	Hydro-Max Relay, Hydro-max Motor
Y	–	NOT USED