REMY POWER PRODUCTS

REMY TECHNICAL SERVICE BULLETIN

Remy Power Products is continuously adding technical training and technical information. We welcome suggestions. If there is something technical you would like to see us add, have comments or need technical assistance, please contact us.

Phone: 800.854.0076
Email: TCS@remyinc.com
Hours: 8 AM – 7 PM CST

Electrical Cable and Wire Size Guide

Vehicles outfitted with aftermarket accessories like stereos, winches, running lights and other high amperage demand devices could start to experience battery issues. The original equipment alternator may not provide enough amperage to handle the new electrical demands. If the alternator isn't upgraded, the lack of proper output will result in constant discharge of the battery, premature alternator failures and starter issues. Many of these customers will replace their original equipment units with a higher amperage aftermarket alternator. When installing a higher amperage alternator you also need to verify that the charging cables are sized appropriately to handle the increase in amperage. (The chart shown serves as a good reference guide and is also on our website). An alternators' ability to provide electrical power to run the vehicle and maintain the battery is directly related to the wire size and quality of connections.

All circuits have natural resistance to current flow. For components to do their work properly, excessive resistance or voltage drop must be corrected. Voltage drop is defined as the amount of voltage loss that occurs through all or part of a circuit due to resistance.

High or unwanted resistance is often caused by one of these four issues:

- Loose connections
- Corrosion in the cables and wiring
- Improperly sized wiring or cables
- Improperly crimped connectors

Remember, the longer the wire, the greater the resistance. Plan on using a larger gauge cable or wire for longer wiring spans. Example: relocating the battery to the trunk area.

Any restrictions in the cables can cause unwanted resistance affecting the flow and volume, commonly known as Voltage Drop. For more information on Voltage Drop Testing refer to our December 2015 TSB at www.remyautomotive.com

An alternator with insufficient output can:

- Result in frequent discharging of batteries
- Reduce alternator efficiency, making the engine work harder
- Increase fuel usage
- Decrease the life of alternator
- Create starter issues

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Minimum Required Gauge
AWG 12 VOLT CABLE/WIRE CHART

Amperage	CABLE/WIRE LENGTH (MUST INCLUDE GROUND RETURN)							
	up to 4 feet	4-7 feet	7-10 feet	10-13 feet	13-16 feet	16-19 feet	19-22 feet	22-25 feet
0 - 20	16	12	12	10	10	8	8	8
20 - 35	12	10	8	8	6	6	6	4
35 - 50	10	8	8	6	6	4	4	4
50 - 65	8	8	6	4	4	4	2	2
65 - 85	8	6	4	4	2	2	2	1/0
85 - 105	8	6	4	2	2	1/0	1/0	1/0
105 - 125	6	4	4	2	1/0	1/0	1/0	1/0
125 - 150	6	4	2	2	1/0	1/0	2/0	2/0
150 - 175	6	4	2	1/0	1/0	2/0		3/0
175 - 200	4	2	1/0	1/0	2/0	2/0	3/0	3/0
200 - 250	4	2	1/0	2/0	2/0	3/0	4/0	4/0
250 - 300	4	2	1/0	2/0	3/0	4/0	2-2/0	2-2/0
300 - 350	2	2	1/0	2/0	3/0	4/0	4/0	2-2/0
350 - 400	2	1	1/0	3/0	3/0	4/0	2-2/0	2-2/0
400 - 450	1	1/0	2/0	3/0	4/0	2-2/0	2-3/0	2-3/0
450 - 500	1	1/0	2/0	3/0	4/0	2-2/0	2-3/0	2-3/0

Notes:
- All cable/wire sizes in the table are AWG (American Wire Gauge)
- Cable/Wire sizes are based on 0.3 volt drop for a new vehicle with a maximum of 0.5 volt drop over the life of the vehicle.

Fusible Links:
- When using fusible links to protect a circuit, the fusible link should be two gauges smaller than the cable/wire on the circuit (i.e. 10 gauge circuit cable/wire = 14 gauge fusible link.

AWG to Metric Conversion Chart

AWG Number	Inches	mm
6/0 (000000)	0.580	14.73
5/0 (00000)	0.517	13.12
4/0 (0000)	0.460	11.7
3/0(000)	0.410	10.4
2/0 (00)	0.365	9.26
1/0 (0)	0.325	8.25
1	0.289	7.35
2	0.258	6.54
3	0.229	5.83
4	0.204	5.19
5	0.182	4.62
6	0.162	4.11
7	0.144	3.66
8	0.128	3.26
9	0.114	2.91
10	0.102	2.59
11	0.0907	2.30
12	0.0808	2.05
13	0.0720	1.83
14	0.0641	1.63
15	0.0571	1.45
16	0.0508	1.29

Need help? Contact Technical Support at 800-854-0076.

If you need assistance with part number identification or electrical system troubleshooting, we're here to help.

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