

# FYI

## Helpful Information For The Tech on the Go

### Wiring Loss in Speaker Lines

An easy rule of thumb for calculating power loss in the speaker line is:  
Power loss is 20% when the total wire resistance is 10% of the load.

The loss can be calculated using a Wire Table (see below). Remember that a speaker has two wires so that a single wire resistance is doubled for a line. The following chart shows the maximum line length for 20% wire loss. For higher wattage divide the length by the amount of wattage increase. Example: The length for a 300 watt line is 1/3 the length of a 100 watt line.

Looking at the chart it is obvious that in some installations the wire gauge requirements becomes so large that it is impractical. In such cases it is advisable to split the load into separate "home runs" which allows a smaller gauge wire to be used to drive the lower wattage speaker groups.

Maximum Length of Line in Feet for 20% Power Loss

WIRE LOAD		#24	#22	#20	#18	#16	#14	#12	#10	#8
4 ohms		8	12	19	31	49	78	124	196	312
8 ohms		15	24	39	61	98	155	247	393	625
25 VOLT LINE	10 W	119	190	302	480	763	1214	1930	3070	4879
	20 W	60	95	151	240	382	607	965	1535	2440
	40 W	30	48	76	120	191	303	483	767	1220
	60 W	20	32	50	80	127	202	322	512	813
	100 W	12	19	30	48	76	121	193	307	488
70 VOLT LINE	10 W	955	1518	2415	<b>3840</b>	<b>6106</b>	<b>9709</b>	<b>15442</b>	<b>24558</b>	<b>39032</b>
	20 W	478	759	1208	1920	3053	4854	<b>7721</b>	<b>12279</b>	<b>19516</b>
	40 W	239	379	604	960	1527	2427	3860	6139	9758
	60 W	159	253	403	640	1018	1618	2574	4093	6506
	100 W	96	152	242	384	611	971	1544	2456	3903

Numbers that are bold subject to high frequency loss due to wire capacitance

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