

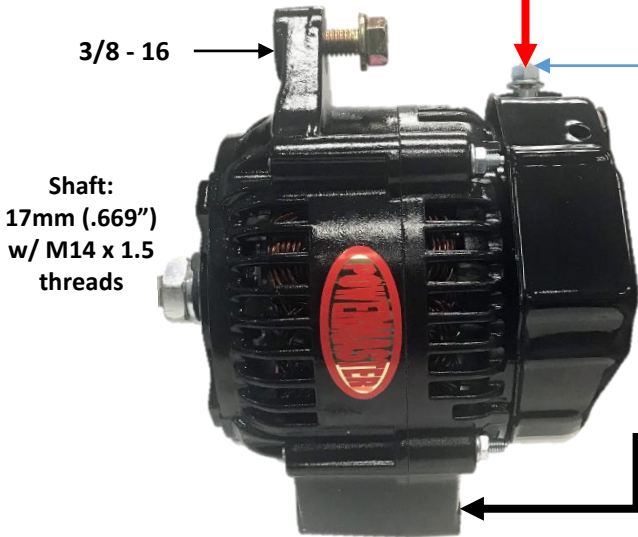
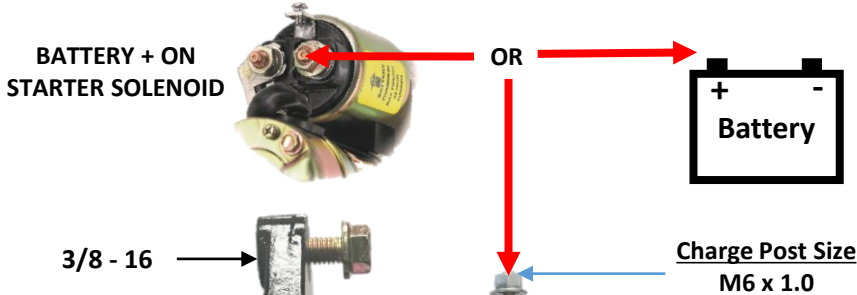


# WIRING INSTRUCTIONS

DENSO Style Race Alternator (118mm)  
(One Wire Hookup)



Tech Dept.  
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Tech@powermasterperformance.com



**STOP**

**DO NOT CHOOSE AN ALTERNATOR BY SIZE!**  
Always verify your vehicles amp load before installation (See attached page). Choosing a unit without sufficient amperage output can result in poor performance and premature failure.  
Note: Idle amperage should still be considered for race applications.

**Grounding:** Make sure all alternator and bracket mounting points are free of any paint, anodizing, powder coat, clear coat, or plating.  
Note: A Motor plate does not guarantee grounding!

**Disconnect Battery Negative (-)**  
**READ ALL INSTRUCTIONS IN BOX!**

**Charge Wires:**  
150-180 Amp Alt. use 4 gauge up to 6 ft.  
Note: When using a battery disconnect switch, run the charge cable to either the battery + or the battery post of the switch.

**Alternator Ground:** Many mounting brackets are powder/clear coated, painted, or plated. The alternator will not ground properly without a ground wire from the Alt. housing to the engine block. (This wire should match charge wire size)

**Battery must have a clean ground to engine block.**  
**Wire Connections:** Be sure all terminals are crimped securely, and connections are clean and tight.

**Belt Tension:** Inspect belt for signs of cracking or glazing. Replace if needed. **A loose belt will cause intermittent charging and generate excessive heat resulting in premature unit/bearing failure.**

[For V belt units follow attached pulley tag.](#)

**A fully charged battery is at least 12.6V, not 12.0V (16V batteries should be 17.2V).** A weak/defective battery will cause premature failure.

**Never disconnect the battery with engine running!** This causes voltage spikes that will damage the alternator.

**DO NOT EXCEED 20,000 ALTERNATOR SHAFT RPM**  
(See Attached Page for more info)

**FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID YOUR WARRANTY**

**Warranty void if unit is soaked in Oil or Mud**



# RACE ALTERNATORS

## How to Choose a Race Alternator & Pulley

### STEP 1: Determine Your AMP Load

Make a list (see example chart) of all your electrical components and total.

#### DETERMINE YOUR TOTAL AMP LOAD

#	Accessory	Ex. Amps	Amp Load
1	CDI <b>Ignition</b>	<b>6-36</b>	
2	HEI <b>Ignition</b>	<b>6-10</b>	
3	Electric Fuel Pump (Each)	<b>7-15 ea</b>	
4	Electric <b>Water Pump</b>	<b>12-25</b>	
5	<b>Electric</b> Fans (Each)	<b>10-50 ea</b>	
6	Headlights / Tail Lights	<b>10-20</b>	
7	Brake Blowers - Each	<b>8-10 ea</b>	
8	Driver Cooling Suit	<b>15-30</b>	
9	Data Recorder	<b>2-10</b>	
10	Trans Brake	<b>12-20</b>	
11	Nitrous Solenoid (Each)	<b>5-30 ea</b>	
12	Gauges	<b>2-6</b>	
13	On Board Radio	<b>4-10</b>	
14	Line Lock	<b>4-8</b>	
15	Delay Box	<b>8-12</b>	
16	Throttle Stop	<b>5-15</b>	
17	Intercooler Pump	<b>10-20</b>	
18	Other		
<b>TOTAL AMP LOAD</b>			

#### Why did my Powermaster racing alternator not come with a pulley?

The pulley systems and ratios in racing vary widely. Some use a matched pulley setup. Others have custom pulleys made to work for their application.

**FAILURE to follow these guidelines will VOID your Warranty!**

### STEP 2: Select Your Alternator

Select the correct alternator to cover your total amperage load.

### STEP 3: Select Your Charge Wire

Select the correct charge wire gauge based on amp load and wire length.

AMP LOAD	CHARGE WIRE LENGTH		
	5' - 10'	11' - 19'	20' - 28'
30 - 70	8 AWG	6 AWG	4 AWG
70 - 100	6 AWG	4 AWG	2 AWG
100 - 150	4 AWG	2 AWG	0 AWG
150 - 200+	2 AWG	1/0 AWG	2/0 AWG

### STEP 4: Select Your Pulley

Determine alternator pulley ratio and ensure alternator shaft RPM is less than rated Max.

**WARNING: Max Alternator Shaft RPM**  
**DELCO Style: 18,000 • DENSO Style: 20,000**

#### PULLEY RATIO CHART ALTERNATOR PULLEY DIAMETER (INCHES)

CRANK PULLEY DIAMETER (INCHES)	ALTERNATOR PULLEY DIAMETER (INCHES)								
	2	2.25	2.3	2.5	2.6	3.25	3.5	3.75	4
3	1.5	1.3	1.3	1.2	1.2	0.9	0.9	0.8	0.8
3.5	1.8	1.6	1.5	1.4	1.3	1.1	1.0	0.9	0.9
4	2.0	1.8	1.7	1.6	1.5	1.2	1.1	1.1	1.0
4.5	2.3	2.0	2.0	1.8	1.7	1.4	1.3	1.2	1.1
5	2.5	2.2	2.2	2.0	1.9	1.5	1.4	1.3	1.3
5.5	2.8	2.4	2.4	2.2	2.1	1.7	1.6	1.5	1.4
6	3.0	2.7	2.6	2.4	2.3	1.8	1.7	1.6	1.5
6.5	3.3	2.9	2.8	2.6	2.5	2.0	1.9	1.7	1.6
7	3.5	3.1	3.0	2.8	2.7	2.2	2.0	1.9	1.8
7.5	3.8	3.3	3.3	3.0	2.9	2.3	2.1	2.0	1.9
8	4.0	3.6	3.5	3.2	3.1	2.5	2.3	2.1	2.0

$$\text{Alternator RPM} = \left( \frac{\text{Pulley Ratio}}{\text{Crank Pulley Diam.}} \right) \times \text{Engine RPM}$$

**Questions? Call or e-Mail Powermaster's Tech Line!**