



CHOOSING AN ALTERNATOR

With so many different alternators available, you may wonder 'how does a person choose the correct alternator for their application'? This overview will provide you with the information to make an intelligent choice.

OVERVIEW

An alternator is designed to recharge the battery. As lights and accessories draw current from the battery, energy is replenished by the alternator. To keep the battery fully charged, the alternator must provide greater amperage than the total load on the battery. A higher amperage alternator will NOT hurt the battery – on the contrary – it will keep the battery fully charged, ready for peak performance.

INTENDED APPLICATION

First you need to determine your application. Is it for street use or racing? Is the new alternator replacing a stock alternator or is it a custom mounted application? What amperage is needed? What finish do you desire? One wire or stock wiring?

AMPERAGE

Start your decision process by determining the amperage load that you have. Add up the amperage used of everything in the vehicle, from headlights and tail lights to electric fuel and water pumps to high power stereo systems. Below is the Amp Draw chart to use as a guide – YOU must determine the total system amperage draw of your vehicle to proceed.

<u>ACCESSORY</u>	<u>AMP DRAW</u>	<u>ACCESSORY</u>	<u>AMP DRAW</u>	<u>ACCESSORY</u>	<u>AMP DRAW</u>
Brake lights	3 – 7	Driving lights	4 – 10	Electric cooling fan	8 – 20
Electric fuel pump	10 - 20	Headlights - pair	6 - 20	Ignition system	6 – 11
Instrument lights	3 - 4	Radio	3 - 8	Stereo amplifier	10 +
Turn signals	4 - 8				

Once you determine your total vehicle amperage draw, add in an additional 10% safety factor and use that number as the minimum amp alternator for your application.

FORM FACTOR

If you are replacing a stock alternator, it is always easiest to replace the alternator with the same style and type of alternator so that it mounts to the stock brackets. Tuff Stuff offers many Amp upgrades in the same alternator form factor. Although just about any alternator can be custom mounted to fit most applications, it is always easiest to go with the stock form factor alternator. You may be thinking 'what is the largest amp alternator I can install in my vehicle?' Well, the sky is the limit. The more amperage the better. If the alternator can fit into your brackets and the belt aligns up, you can put any size alternator on your vehicle. The voltage regulator will control the amount of amperage that the battery needs to run your accessories.

FINISH

Tuff Stuff has a wide variety of alternator finishes available, from chrome plated and polished aluminum to powder coated colors and Factory CAST+ finishes. Many muscle car owners prefer chrome plated alternators while many street rodders prefer polished aluminum alternators. And some Ford enthusiasts prefer the blue powder coated alternators. The finish choice is your personal preference.



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ONE WIRE ALTERNATORS

Tuff Stuff is the originator of the one-wire alternator! Tuff Stuff's 40 years of experience has enabled us to develop internal alternator components that will keep your battery charged at a crawl. No other manufacturer in the industry has been able to produce more amps at low RPM's than Tuff Stuff. There is no need to worry about the use of underdrive pulley systems or ignition regulator turn on with the use of a Tuff Stuff one wire alternator.

WIRING

Most Tuff Stuff alternators are available in one-wire or stock wiring configurations. One wire alternators will simplify your build up. If you are starting a project from scratch, then there is no longer a need for the messy wiring harness from an externally mounted fender wall regulator. In many instances, you can remove your existing external regulator and harness and replace it with a one wire. One wire alternators can be purchased for GM, Ford and Mopar applications. Please note: If your vehicle was originally equipped with a dash indicator lamp in some GM applications it will be necessary to remove the black rubber regulator cover and plug in your existing two spade plug. This procedure can be performed when installing our models 7127, 7139 and 7140. To wire a one-wire alternator, run a charge wire from the battery terminal on the alternator to the positive terminal on the battery. You may also consider running the wire to the starter solenoid (main lug). Your battery cable is connected to this lug. This may hide the charge wire for a cleaner look.

CHARGE WIRE

It is imperative that you increase the size of your charge wire if you are upgrading to a higher amp alternator. Insufficient wire gauge size can cause a fire due to the heat created by resistance.

AMPS@12V	1-5 FT	5-10 FT	10-15 FT	15-20 FT	20-25 FT	25-30 FT
0-60	8 AWG	4 AWG	2 AWG	2 AWG	1 AWG	2/0 AWG
60-100	6 AWG	4 AWG	1 AWG	0 AWG	0 AWG	2/0 AWG
100-150	4 AWG	2 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG
150-190	4 AWG	1AWG	2/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG
190-250	2 AWG	0 AWG	2/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
250-300	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG

TESTING

Once the new alternator is installed, it should be tested to verify that it is charging. EVERY Tuff Stuff alternator is tested in – house and at various RPM – from idle to mid and high RPM's. To test an alternator, use a multi meter (can be bought for under \$10.00) turn the dial to DCV. Hold the black probe on the negative battery terminal and the red probe on the right. With the vehicle engine running, the battery voltage should read between 13.5 and 14 volts. Battery voltage without the engine running should read 12.6 volts.

SUMMARY

Tuff Stuff Performance Accessories is a family owned and operated manufacturer of chrome plated, polished aluminum and powder coated engine accessories including alternators. In business for over 40 years, Tuff Stuff products – including alternators – are quality built in Cleveland, Ohio by hard working Americans. When you are looking for a new alternator for your American made hot rod or muscle car, why would you ever consider a cheap import? A quality alternator lasts a lot longer than a cheap import! For complete product information, visit www.tuffstuffperformance.com or call 216-961-1800.