



7501 Straw Plains Pike, Knoxville, TN 37924

Tech Support: (760) 244-2049

## General Installation Instructions

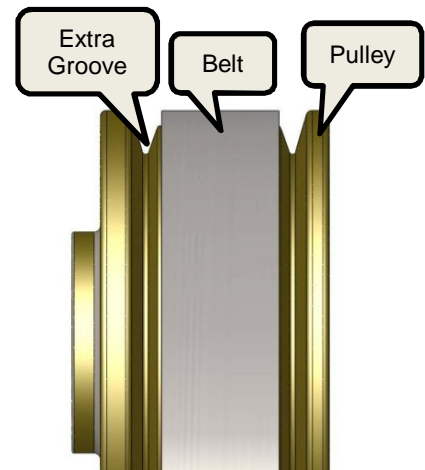
Disconnect the negative battery cable and then disconnect the positive battery cable.

Unplug or disconnect the vehicle's alternator harness from the alternator, remove the belt, and then remove the stock alternator from its mounting Brackets.

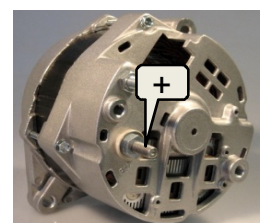
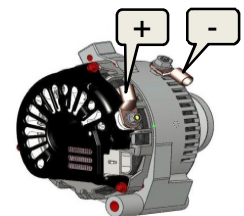
Install the new Mechman alternator using the specific installation instructions if supplied. Re-tighten all bolts after installation. Many problems may be eliminated if the bolts are re-tightened after the installation, so as to insure the proper belt tension and alternator seating.

**Pulley instructions:** Your new MechMan alternator is a high output alternator, and should be equipped with the proper pulley. (some models may require stock pulley, call MechMan tech dept. if you are unsure) Do not unless absolutely necessary, attempt to install your original pulley on the MechMan alternator shaft as there may not be enough threads to properly engage the nut. If it is necessary to change the pulley on your new MechMan alternator following these steps will help guide you thru the pulley changing process: It is recommended that you use an air impact wrench to loosen the nut of the alternator pulley. With one hand, hold the impact wrench, with the other hold the alternator pulley. We recommend that protective gloves and eyewear be used as a safety precaution. Install the belt pulley, lock washer, and nut by hand. Torque the pulley nut to 70 ft. lbs. and be certain the lock washer is completely closed. Do not over tighten.

**Belt Instructions:** On most applications, the original stock belt can be used if not overly worn, but MechMan recommends that you install a new belt at the time of installing the new MechMan alternator. New belts have better gripping ability and the high output alternator needs better gripping to reduce or prevent slippage. MechMan recommends "Gates Green Stripe" belts when available. Prior to purchasing a new belt, it is best to use the original stock belt to get the correct length needed. With "V" belt applications, it is likely that the belt will need to be tensioned tighter than normal to prevent slippage. On high mileage vehicles, it maybe necessary to replace the spring tensioner if slippage occurs. MechMan alternators for serpentine belt applications will have a 3 to 8 groove pulley depending on the vehicle. It is imperative that the original manufacturer belt alignment be maintained. If the new pulley has more grooves, or is wider than the belt, the belt should be installed using the grooves that will maintain the proper belt alignment. Having unused grooves on the pulley does not adversely affect performance. (see figure).



MechMan high output alternators will need to be installed with 1/0 gauge or larger cables for Positive and Negative connections between the alternator and the battery. Always use the correct size ring terminals for the cable and stud sizes. Many common ring terminals have an oversized hole, which reduces contact surface area to the charge post. **Contact area from output post to cable is critical to charging performance.** Add the larger cables over the factory cables that connect to the battery. Connect the positive cable first and the negative cable last. The + stud is easily Identified, it will always go into the plastic insulator on the case, the CS144 alternators will be marked with "BAT". The - ground cable can be bolted anywhere onto the alternator case or on to the ground post(if supplied),(see figure). Connect the original plug into adapter plug or straight into the MechMan alternator. Start the engine, and check that the MechMan alternator is properly charging. **See Diagnostic Instructions**



**Battery Charging Instructions:** Fully charge the battery(s), to 12.75 volts minimum, prior to starting the vehicle after the alternator installation is complete. If a vehicle has been sitting for a long period of time, the battery may have discharged somewhat. This could cause the alternator to overheat at startup. Your MechMan alternator was not intended to charge your battery. A discharged 800 cold cranking amp battery requires approximately 140 amps of charge for several minutes until it reaches normal voltage, which means that the alternator would more than likely run at 100% duty cycle until the battery is brought to full charge, which could result in the alternator failing.

Always use the correct battery charger(12 volt or 16 volt) for the battery that you are utilizing in your vehicle.

**Do not operate the alternator under loads that could exceed the output at any given RPM. This is especially true at idle RPM's, doing so could cause the alternator to overheat, burn and start a fire. DOING THIS WILL DEFINITELY VOID THE WARRANTY.**

**Diagnostic Instructions:** Apply a moderate load to the charging system (headlights and/or air conditioning) and bring the engine to 1,500 rpm. Using a digital voltmeter measure the DC voltage from a bare metal point on the case of the alternator to the negative battery terminal (see diagram #1). Readings higher than 0.10VDC indicate a poor ground connection. Check the ground path including any paint or anodizing on the brackets, the engine ground strap, and the ground cable from the frame to the battery.

Using the voltmeter, measure the voltage drop between the battery positive post and the alternator output post(see diagram #2). The voltage should be less than 0.40VDC. If the voltage is higher than 0.40VDC, check for poor connections between the alternator and the battery. Possible causes are undersized battery cables, loose or improperly crimped terminals, and corroded connections.

If your Mechman alternator is supplied with an adjustable voltage regulator( Red Finned), and you need to adjust, do so very carefully as the adjustment screw is made of plastic. To adjust: a clockwise turn increases and a counter clockwise turn decreases the voltage. **Voltage levels over 15 volts WILL damage AGM (gel) type 12 volt batteries, and may damage the vehicle's electrical systems.**

**Test Sheet info.:** Your MechMan Alternator has been computer tested to ensure that it meets or exceeds it's rated output. Some models will include a dyno sheet, that illustrates your alternators output throughout it's operating RPM range. In order to understand what the alternator will produce on your vehicle, it is important to understand pulley ratio. Pulley ratio is the ratio of the crank shaft pulley diameter vs. the alternator pulley diameter. As an example: If your crank pulley measures 8-1/2" in diameter and your alternator pulley measures 2-7/8" in diameter then the ratio is = 2.956 to one, or roughly a 3:1 ratio. The RPM labeled on the test sheet is the alternator rotor speed at which the alternator output was tested at. You will need to divide the listed rotor RPM by your vehicle's pulley ratio in order to determine the engine speed that output will occur at. As an example: An alternator speed of 2400 RPM is equivalent to an engine speed of 800 RPM, assuming a 3:1 ratio exists. Most vehicles will maintain a 3:1 or greater pulley ratio with a MechMan alternator.

