

Source: Leece-Neville Heavy Duty Systems Division -
Arcade, NY USA
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Subject: Conversion to Multipower System
Bulletin No: TSB-1050
Models: 4991PA and 4992PA to 4993PA

Technical Service
Bulletin

Subject: Procedure to convert X² Power System (4991PA, 4992PA) to the NEW!!! Multipower System (Alternator Part Number 4993PA).

Brief History

In order to enhance the load sharing capability of multiple alternator systems, technology needed to be created where both alternators would share the vehicle's electrical loads. To accomplish this we created our X² system where the alternators communicate through a sync wire which allows the alternators to share the vehicle's electrical loads. The only downside for this system is it used different alternators which required two part numbers in order for this system to work. This required more inventory at the dealers to service this type of system. We listened to our customers comments regarding this issue and we created our **NEW!!! Multipower System**. This Multipower technology offers fail-safe characteristics providing back-up power in the event of a partial system failure. As with our original X² system, the two alternators communicate to each other through a transmit / receive "TXRX" wire. If the Master alternator failed neither the Master or Follower could function. To better enhance the serviceability, reliability and improve the temperature rating of this technology for today's new emissions engines we now have one common regulator. The alternator can function as a stand alone alternator or multiple alternators can be installed onto one application in parallel and share a load.

To convert an existing X² system to the new Multipower System please follow the steps below.

- The X² system is not compatible with the Multipower System. Interchanging technology will result in poor performance or a no charge condition.
- The Multipower System components are direct drop-in replacements. No modifications are needed to existing alternators or vehicles wiring.
- To determine if you have an X² system, the part numbers are:
Alternator Models: A0014991PA, A0014992PA
Regulator Part#: R213103155 (Black Label), R213103156 (Blue Label)
- If both alternators are going to be replaced, replace existing 4991PA and 4992PA with 4993PA. Wiring connections for 4993PA are exactly the same as the 4991PA and 4992PA except the SYNC terminal has been changed to TXRX. Even though the terminal identification has changed it still serves the same purpose.
- If only regulators are going to be changed, please follow the procedure below to properly change the regulators.

Note: Both regulators R213103155 (Black Label) and R213103156 (Blue Label) need to be replaced with regulator R240104104 in order for the system to operate properly.

Important: The information contained in this bulletin is intended for use by trained, professional technicians who have the proper tools, equipment, and training to perform the required maintenance described above. This information is NOT intended for 'do-it-yourselfers', and you should not assume that this information applies to your equipment. If you have any questions regarding this information please visit our website at www.prestolite.com, or contact our technical service department at:

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Regulator Removal Procedure:

- 1) Remove four (4) screws from the regulator cover, and remove the #10 nuts from the terminals located on the regulator holder (Fig. 1). Tilt the regulator up, and remove the two 10-32 square head screws to disconnect the regulator blue and white leads (Fig. 2).

Fig. 1

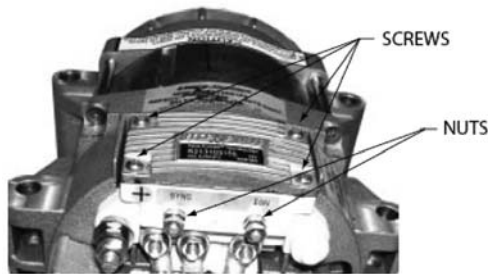
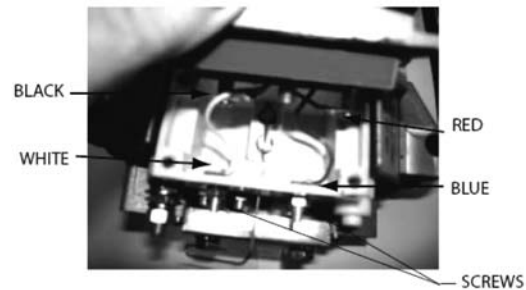
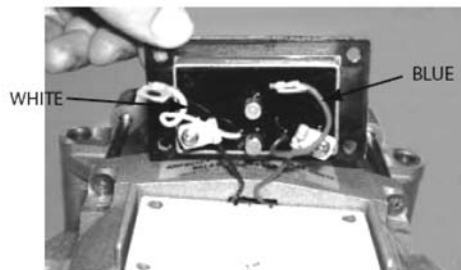


Fig. 2



- 2) Remove phillips screws holding the red and black leads to the regulator (Fig. 3). Remove the regulator.

Fig. 3



CAUTION: All screws that may fall into the regulator holder must be removed at this time to prevent them from falling into the slip ring cavity through the brush openings.

- 3) Remove the brushes and visually inspect them. If the brushes appear burned, cracked, or damaged, then the brushes must be replaced. Inspect the springs and the shunt lead within the spring for damage. Replace brushes if necessary. Check brush length. If brush is less than half its original length, (or about 3/8"), then replace the brush.
- 4) Inspect the red and black leads. If the insulation is damaged so that bare wires are noticed, then the alternator should be disassembled, and the leads replaced.

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Regulator Installation Procedure:

1) Insert a brush in each of the two (2) brush openings. Compress the springs and retain with a pin inserted through the access hole in the regulator holder. A suitable pin can be made of a 1/16" drill, brazing wire or heavy paper clip (Fig. 4).

Fig. 4

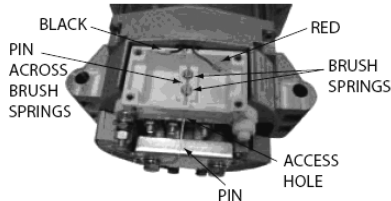
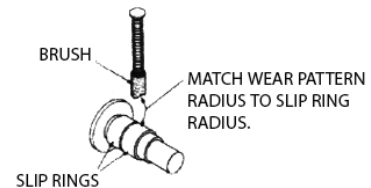


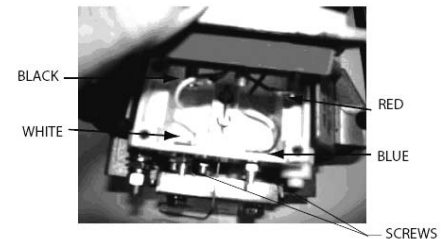
Fig. 5



If the original brushes are being used, then the wear pattern of the brush must be matched with the radius of the slip ring (Fig. 5).

2) Align the regulator with the brush holder so when installed the label on the cover is facing away from the alternator. Install the BLACK lead to the left (negative) regulator terminal and the RED lead to the right (positive) regulator terminal. Tighten phillips screws (Fig. 6).

Fig. 6

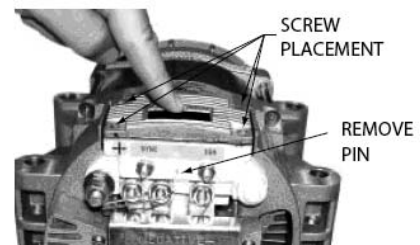


3) Install the BLUE and WHITE regulator leads with the #10 square head screws and #10-32 self-locking nut to the inside of the regulator holder (Fig. 6).

4) Route the RED and BLACK leads in the regulator holder so they seat properly in the two notches in the holder. Insure that the leads are dressed so they do not interfere with the regulator once it is installed in holder.

5) Place the regulator in the holder. Apply a small amount of downward pressure on the regulator and REMOVE the pin from the access hole to release the brush springs (Fig. 7).

Fig. 6



CAUTION: The pin used to retain the brushes during regulator assembly **must be removed before** the regulator assembly screws are fastened, to avoid regulator damage. **Warranty is void on any regulator returned with "pin" damage!!!** Insure that the RED and BLACK leads are properly seated before regulator assembly screws are tightened to avoid damaging the insulation.

6) Hold down the regulator and secure it with four screws.

It is very important that when converting from the X² system to the **New!!** Multipower System that either R240104104 regulators or 4993PA alternators are used. Interchanging technology will result in poor performance or a no output condition.

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