

Source: Leece-Neville Heavy Duty Systems Division - Arcade, NY USA
Date: July 7, 2017
Bulletin No: TSB-1062
Models: 4800, 4900 Series 185 amp - 320 amp
Subject: Convert alternator to solid lead frame rectifiers

This procedure will explain how to convert a 4000 series alternator (SAE J-180 and Pad Mount) to a solid lead frame rectifier.

Alternator Disassembly

Step 1: Remove 4 screws that attach the regulator to alternator.
See Fig 1.

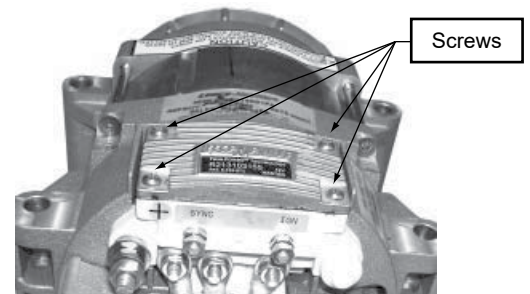


Fig 1

Step 2: Lift regulator from alternator.
See Fig 2.

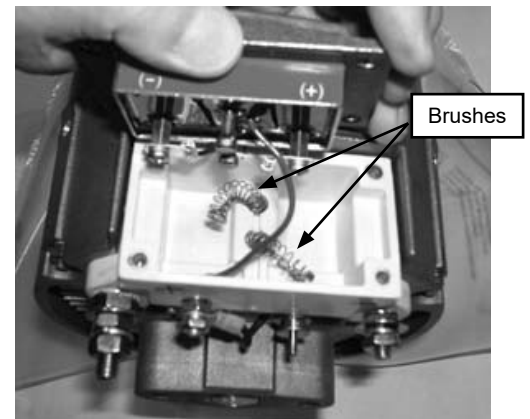


Fig 2

Step 3: Remove brushes from brushbox.
See Fig 2.

Step 4: Remove through bolts from alternator.
See Fig 3 Pad mount alternators.
See Fig 4 J-180 mount alternators.

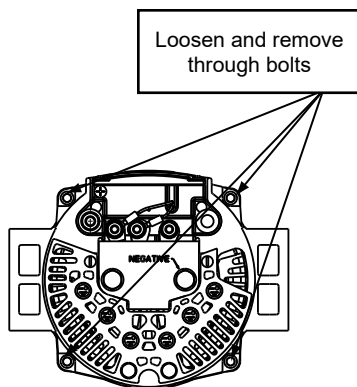


Fig 3

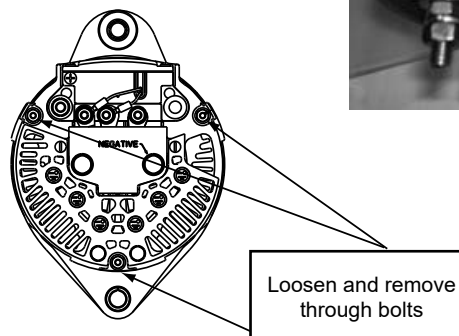


Fig 4

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Step 5: Tap front housing with a soft face mallet to separate the front housing/ rotor assembly from the rear housing/ stator assembly.
See Fig 5.

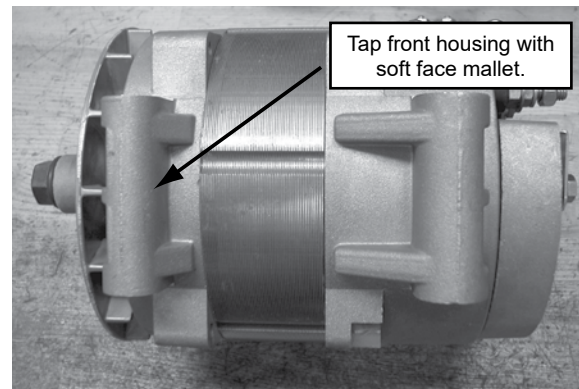


Fig 5

Step 6: Pull front housing/ rotor assembly from rear housing/ stator assembly.
See Fig 6.

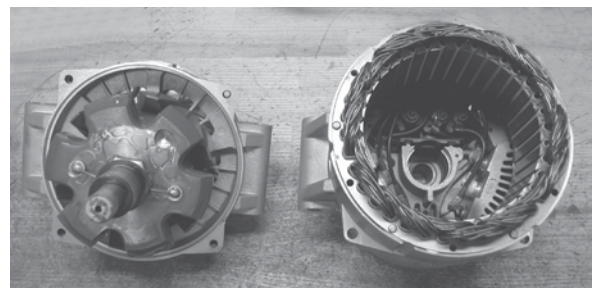


Fig 6

Step 7: Remove three stator nuts holding stator to rear housing and remove stator.
See Fig 7 and 8.

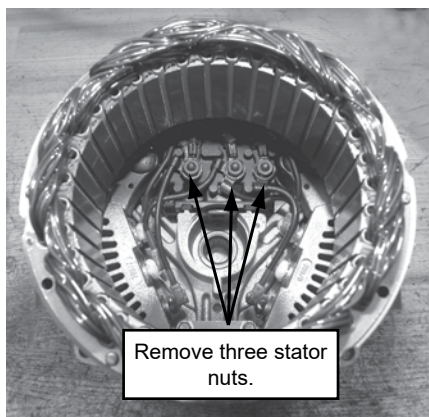


Fig 7

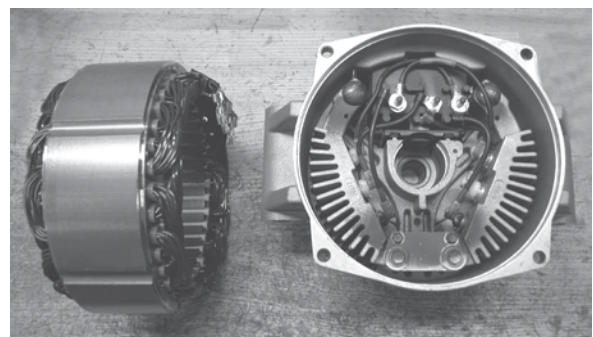


Fig 8

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Negative Ring Removal and Installation

Step 1: Remove two bolts holding negative cover plate.

Step 2: Remove negative plate. See Fig 1.

Step 3: Remove three 1/4" AC tap nuts.

Step 4: Remove two 1/4" bolts.

Step 5: Remove two pan head screws and discard.

Note: Shorter replacement screws will be furnished with replacement rectifier. See Fig 2 for Steps 3-5.

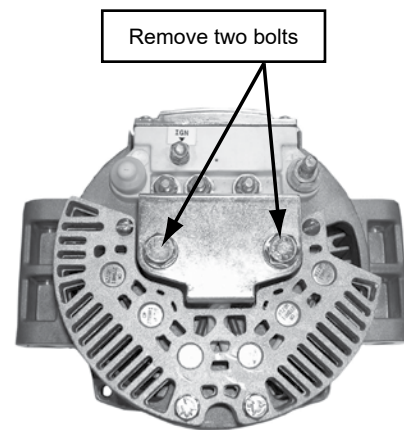


Fig 1

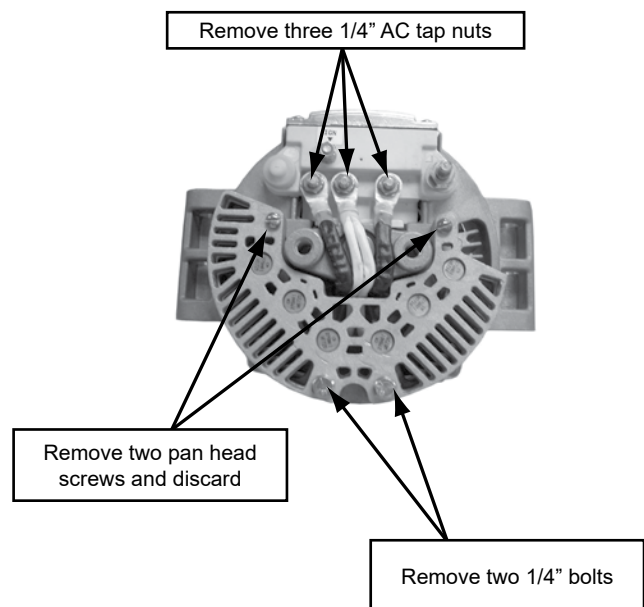


Fig 2

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Step 6: Remove negative rectifier ring from alternator.
See Fig 3.

Step 7: Install negative rectifier ring onto alternator.
See Fig 4.

Step 8: Insert and tighten two 1/4" bolts.
Torque to 50-60 lb-in.

Step 9: Insert and tighten two #10 X 1 1/4" screws supplied with kit. Torque to 20-25 lb-in.

Step 10: Install three AC nuts.
Torque to 50-60 lb-in.
See Fig 5 for steps 8-10.

Step 11: Place negative cover on alternator, insert two bolts and tighten. Torque to 20-25 lb-in.
See Fig 6.

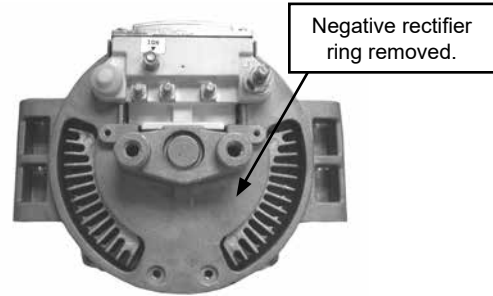


Fig 3

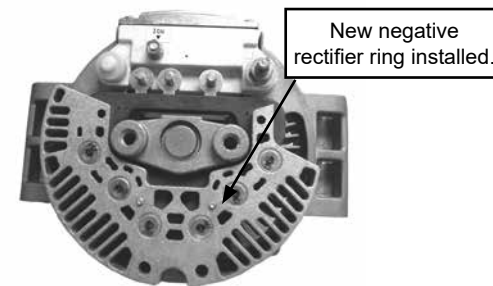


Fig 4

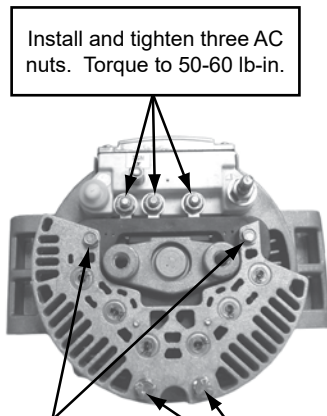


Fig 5

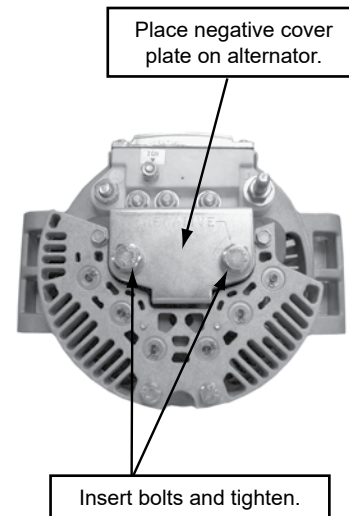


Fig 6

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Positive Ring Removal and Installation

Step 1: Remove wires from AC taps.

Step 2: Remove hardware.
See Fig 1 for Steps 1 and 2.

Step 3: Please discard items shown in Fig 2.
If alternator has yellow filter capacitor, you must purchase a replacement capacitor. (A031104788S)

Step 4: Flip alternator housing and remove hardware. Remove output studs.
See Fig 3.

Step 5: Remove positive rectifiers from rear housing. See Fig 4.

Note: Make sure insulators are in place before installing new rectifier.

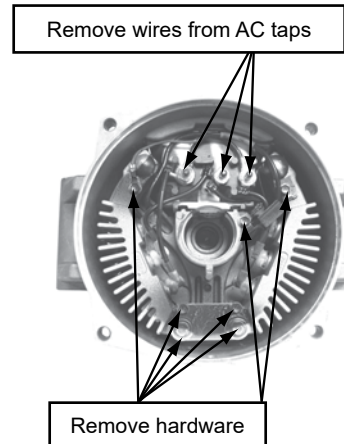


Fig 1

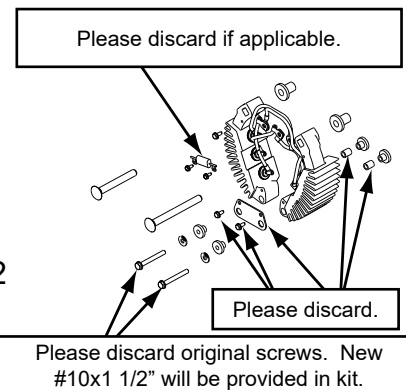


Fig 2

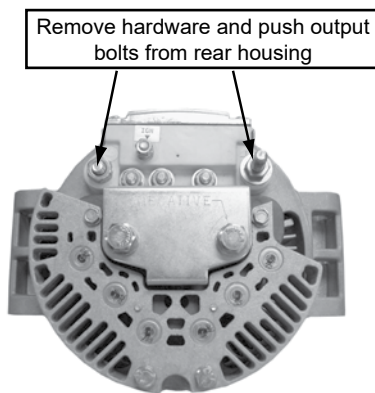


Fig 3

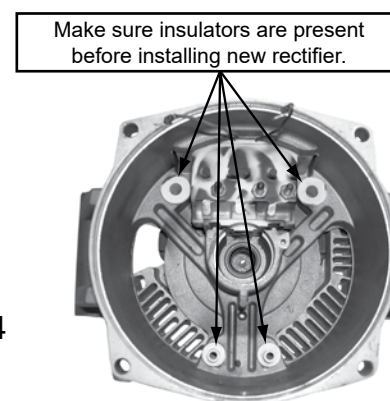


Fig 4

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Step 6: Snap off three standoffs on brush box with needle nose pliers before installing rectifier. See Fig 5

If not, damage to the rectifier ring will be the result!!

Step 7: Install rectifier and make sure insulators are properly seated. See Fig 6

Step 8: Install hardware and insulators per Fig 7. See Fig 8 for required torques.

Three standoffs need to be snapped off flush to top of brush box. If not, damage to the rectifier ring will be the results. This can be done gently with needle nose pliers.

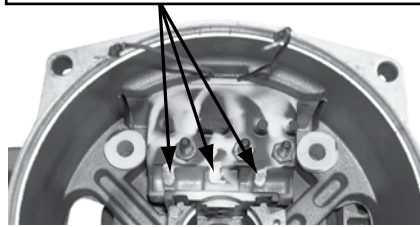


Fig 5

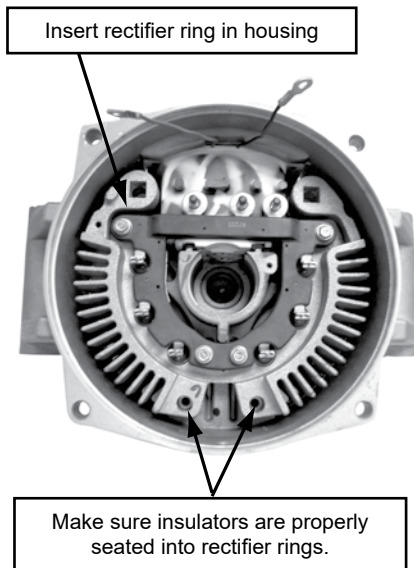


Fig 6

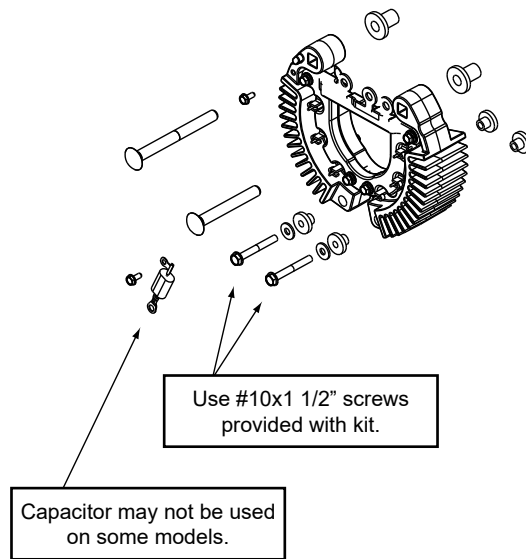


Fig 7

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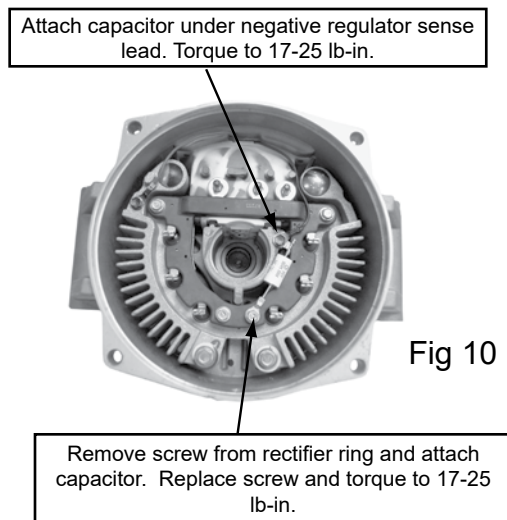
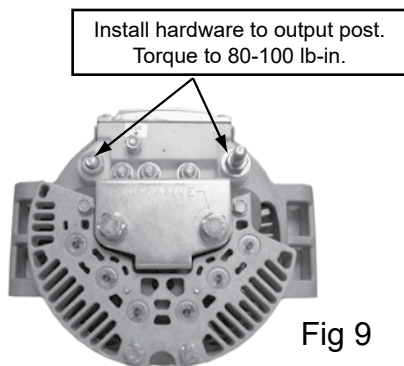
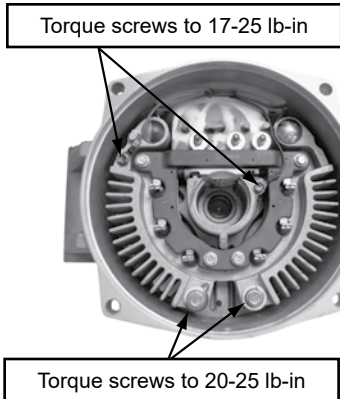
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Step 9: Torque hardware per Fig 8.

Step 10: Flip alternator over and install hardware to alternator output studs. See Fig 9.

Step 11: If alternator came with an internal filter capacitor please refer to Fig 10 for proper installation.



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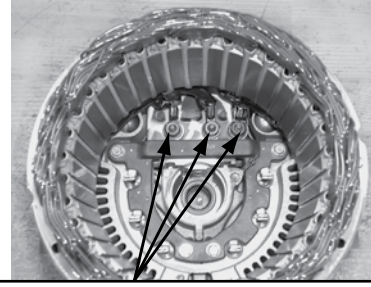
Alternator Assembly Procedure.

Step 1: Place stator on rear housing and attach stator terminals to alternator AC taps. Attach nuts and tighten to 17-23 lb-in. See Fig 1.

Note: On 4800 J-180 models it is important to line up the stator through bolt holes with the rear housing holes in order to insert through bolts. See Fig 2.

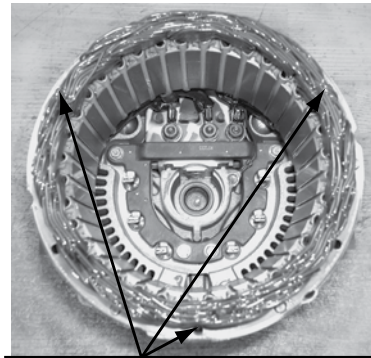
Step 3: Insert front housing/ rotor assembly into rear housing/ stator assembly.

On pad mount alternators place the alternator on a flat surface so the front and rear pads are in line. No rocking should be present between the front and rear pads. See Fig 3. Insert through bolts and torque in a cross pattern to 90-110 lb-in. See Fig 4.



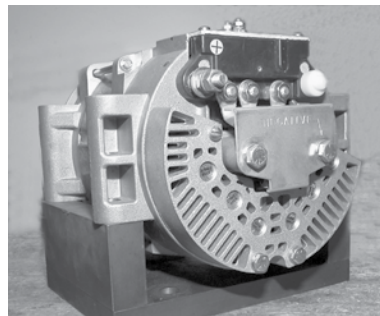
Insert stator terminals on AC taps. Install nuts and torque to 17-23 lb-in.

Fig 1



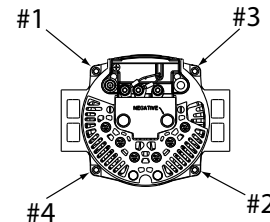
Stator through bolt holes must line up with rear housing holes.

Fig 2



Alternator must be placed on a flat surface to make sure the front and rear pads are in line.

Fig 3



Tighten through bolts in a cross pattern. #1, #2, #3, #4

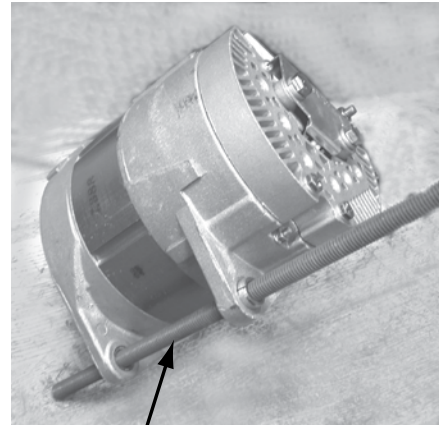
Fig 4

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Step 3 (Cont.): On 4800 J-180 mount alternators insert a 1/2" rod through the two mounting holes. This will aid in lining up the through bolt holes. Insert through bolts and torque nuts to 45-50 lb-in. See Fig 5,6.

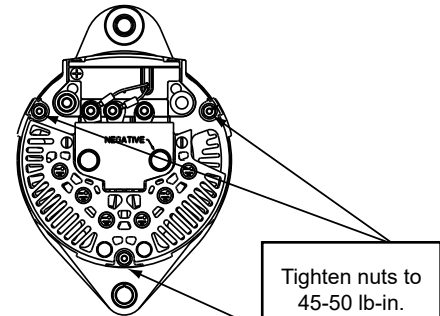


Insert 1/2" rod through mounting holes.

Fig 5

Step 4: Reinstall brushes into brush holder. If existing brushes are reinstalled make certain to match wear pattern to slip ring. See Fig 7. With brush placed into holder compress entire spring into holder and retain brush contact into opening with a 1/16" drill bit or mechanics wire. Install second brush following same procedure; slipping retaining pin forward through front opening of brush box to secure both brushes. See Fig 8.

Note: If brushes length is 3/16" or less then brushes will need to be replaced. See Fig 9.



Tighten nuts to 45-50 lb-in.

Fig 6

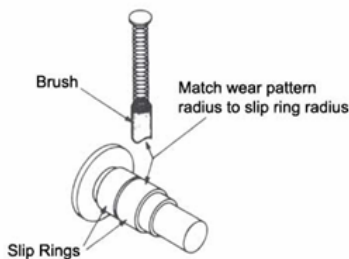
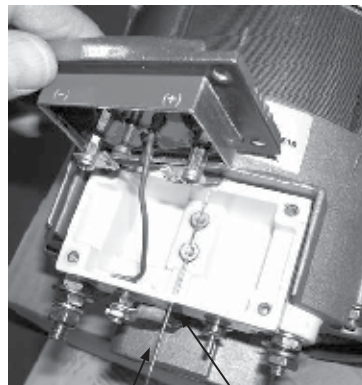


Fig 7



Retaining pin Access hole

Fig 8

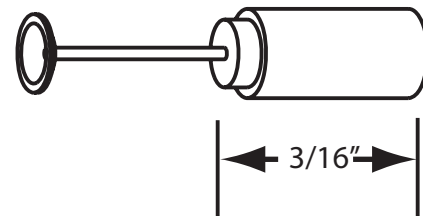


Fig 9

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Step 5: Place regulator back onto alternator.

Use caution not to pinch regulator sense wires. See Fig 10.

Holding regulator firmly into place remove the retaining pin (See Fig 8) from the Access Hole to release the brush springs. Hold down the regulator and secure it with 4 #8-32 screws.

Torque screws to 11-13 lb-in.

See Fig 11.

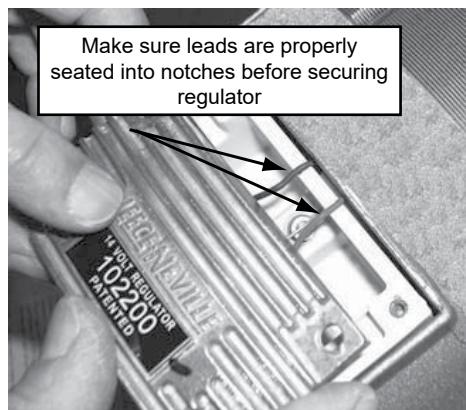


Fig 10

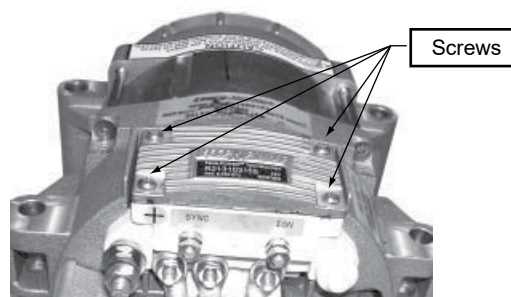


Fig 11

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