



CORPORATE ADDRESS:
202 Plaza Drive, Manchester, PA 17345

web site: www.penntexusa.com
email: tech@penntexusa.com

SHIPPING/ MANUFACTURING ADDRESS:
7620 Flagstone, Fort Worth, TX 76118
Ph. 817-590-2818, Fax 817-590-0505
Warranty Toll-Free Line: 877-590-7366
Warranty Fax Line: 817-590-0398

SERVICE WARRANTY PROCEDURE 2009-up Fords utilizing the PX-7000 Regulator

In order to validate the PennTex warranty, PennTex Industries, Inc. must be contacted before doing any charging system repair or diagnosis. We at PennTex understand that the vehicle owner/end user wants to get their vehicle fixed as soon as possible. To help you do this, PennTex Industries, Inc. has a five-step plan for you to follow. (For a complete, very detailed explanation of everything that takes place during a PennTex warranty, see "How a PennTex Warranty Is Done" by clicking on the "Warranty" page at www.penntexusa.com.)

ONE: complete the attached 4-Step Charging System Test, Full Field Test, and Warranty Claim Form.

All PennTex charging systems utilize an external voltage regulator that is usually mounted inside the vehicle under the right side of the dash. The **4-step Charging System Test** must be done with a digital voltmeter (with the regulator connector plugged in) on the Blue, Orange, and Large Red wire terminals. Voltage readings taken at the alternator connectors may be different and do not apply in this test. Wire color codes are Blue: Rotor Voltage; Orange: Stator Voltage; Large Red: Battery Voltage. **The four steps are:** First: Ignition off (key off), Second: Ignition on (key on, engine not running), Third: Engine on (key on, at engine idle), Fourth: Engine on, (key on at High Idle of approximately 1000 rpm + -). (See attached diagrams) The PX-7000 Voltage Regulator communicates with the Ford computer. Input from that computer will influence the voltage output of the PennTex Charging System.

Unplug the PennTex PX-7000 Regulator and unplug the three-wire (Purple, Blue w/Red Stripe, Red) connector from the OEM Ford harness connector that would have plugged into the OEM Ford alternator. Doing the Full-Field Test without unplugging the 3-wire connector could do serious electrical damage. **Complete the Full-Field Test.** All accessories should be OFF during these tests. **Fax three completed pages back: the 4-step Test, the Full Field Test, and the Warranty Claim Form to 817-590-0398 to have your readings reviewed.** Only these three completed pages need to be faxed back.

TWO: We will call you back. PennTex will review the readings to determine if the failure is the regulator, alternator, harness/connections, batteries, or a possible combination of failures.

NOTE: Burned output posts, brushes, belts, batteries, and towing are not covered. Alternators that have been painted, sandblasted, disassembled, relocked, or rebuilt using non-PennTex parts are automatically excluded from any warranty coverage. See the PennTex Manufacturers Limited Warranty for a full explanation of warranty coverage.

THREE: We will ship the replacement part(s) to you or we will arrange for a local distributor to ship or replace the defective part(s) promptly. PennTex Industries, Inc. will pay for UPS Ground shipment of these replacement parts from the Fort Worth, Texas plant. You can upgrade to UPS Next-Day/ 2nd-Day air service but you are responsible for paying the extra charge for this. That amount will be deducted from your labor claim. PennTex will assist with labor charges based on the attached flat rate time allowance schedule. There is no freight allowance for shipments outside of the USA and Canada.

FOUR: We want the old parts back. PennTex pays for return shipment and a UPS return label is included with the replacement parts. We will issue a Returned Goods Authorization (RGA) number to authorize the return of the defective part(s) when we send your replacement parts. Place a copy of your Service Repair Invoice (Labor Bill) and a copy of your PennTex Warranty Claim Form in the box with the defective part(s) being returned. Writing your labor amount on the Warranty Claim Form does not assure payment. We need a numbered Service Repair Invoice to pay you.

FIVE: Use the instructions included with your replacement parts and the prepaid UPS shipping label to send your paperwork and old PennTex parts back to the PennTex Ft. Worth, Texas address only. Parts returned to the Penntex address in Pennsylvania will be refused. They are not set up for shipping. Any other return parts shipping cost reimbursement is based on UPS Ground shipping rates. Do not ship parts back by any type of air freight or the costs will be deducted from your labor reimbursement. **Only after we have received the defective parts, and your Numbered Service Repair Invoice (labor bill) can any credits or labor claims be processed.** An average amount of time from when you send your parts back to issue of labor payment is about 21 days. You'll receive an invoice in the mail after the repair as a return reminder. That invoice will only become a real bill if the old parts aren't returned.

05/11/2015

PX-7000 REGULATOR FOUR-STEP & FULL-FIELD TEST DIFFERENCES

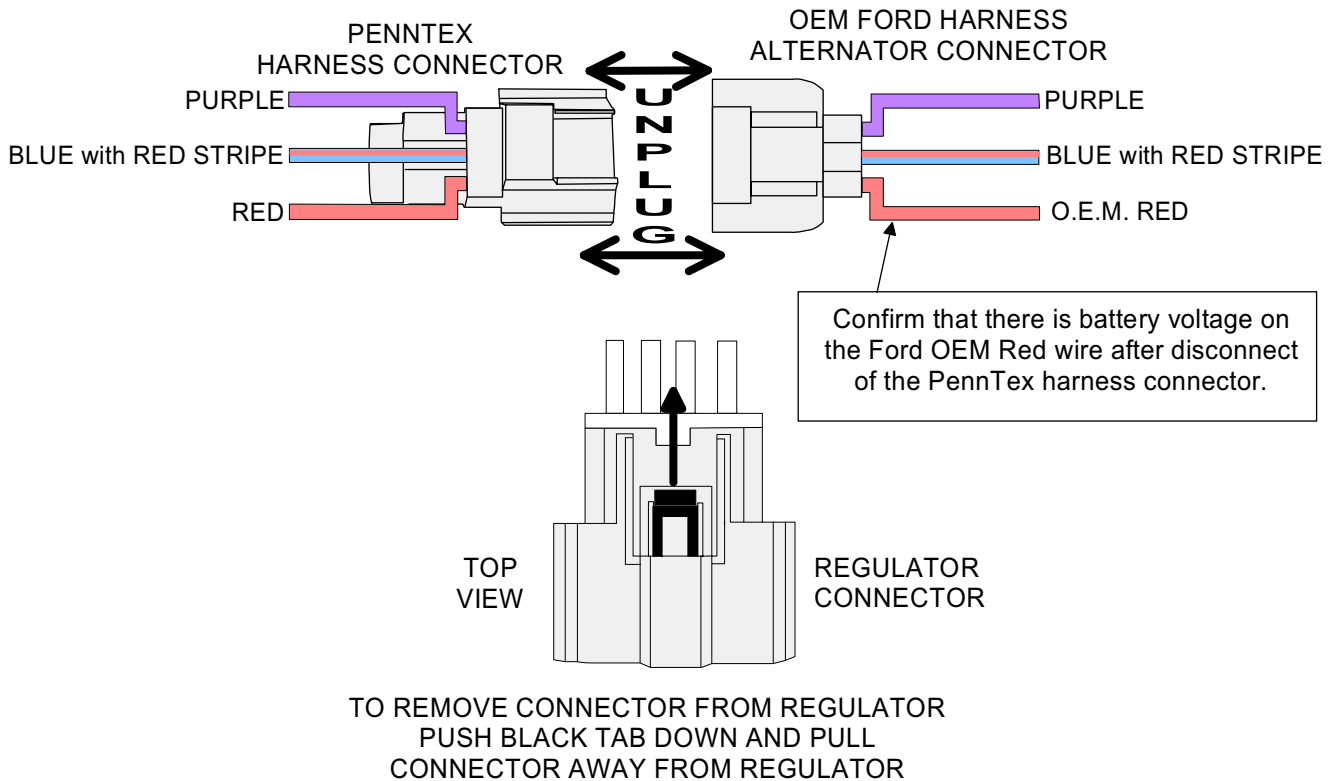
Do the PX-7000 Regulator Four-Step (or 4-Stage) Voltage Tests first.

Nothing is disconnected when doing the 4-Step Voltage Tests. You are checking voltages at the Regulator with the engine off and the engine running per the instructions on that test page. If any connections are unplugged during the 4-Step Tests, the voltage readings will not be accurate. (If the alternator problem is mechanical, no voltage tests are required.)

Do the PX-7000 Regulator Full-Field Tests after doing the 4-Step Tests.

Unlike the 4-Step Tests, several connectors are unplugged for the Full-Field Tests. The Regulator connector is unplugged and the 3-wire connector to the PennTex Harness is unplugged for the Full-Field Test. The 3-wire connector must be unplugged during the Full-Field Test or serious vehicle PCM damage can occur.

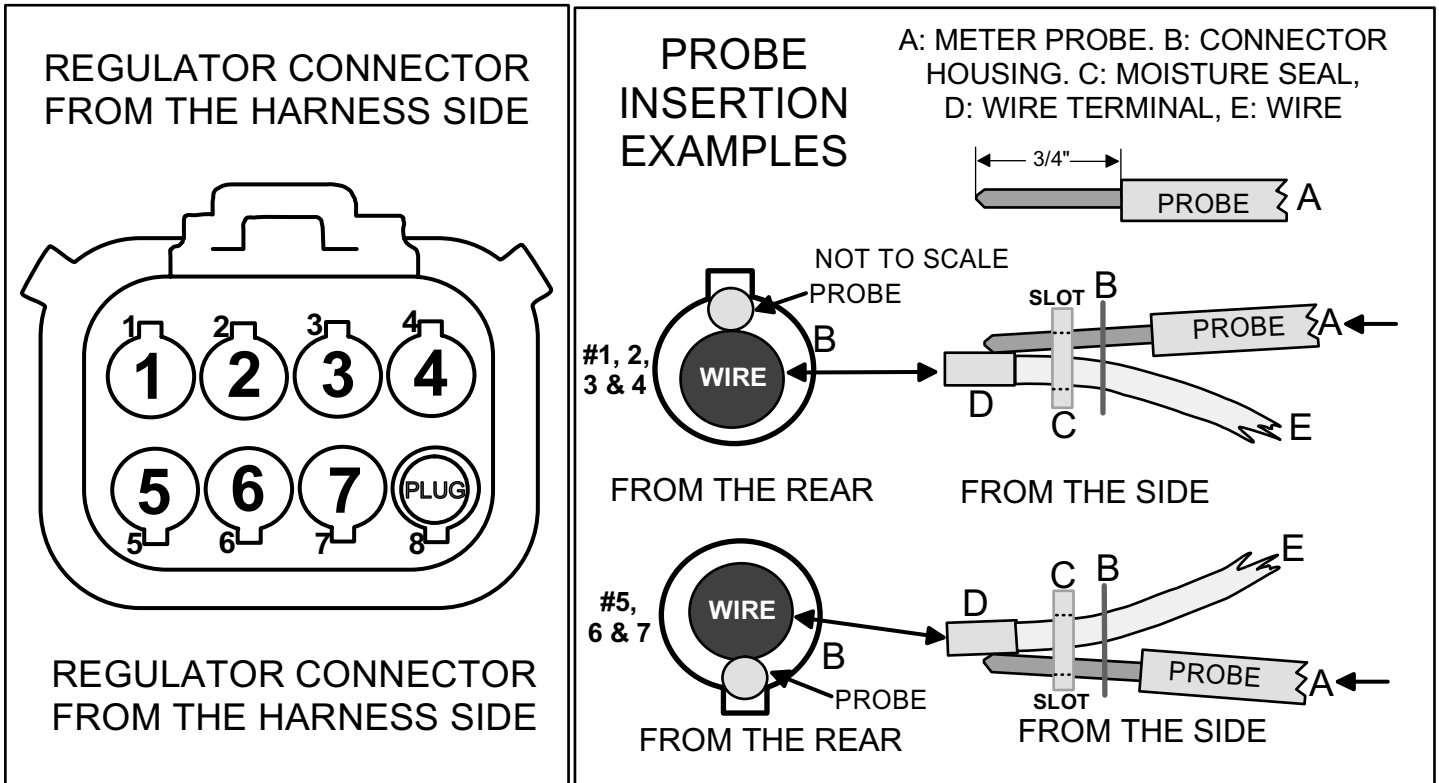
NOTE: you will also be confirming battery voltage on the OEM Ford Red wire after disconnecting the harnesses because we have seen activated fusible links on this wire. This is an important test to be sure the regulator will work properly when all is reconnected.



PENNTEX INDUSTRIES, INC.
TECH LINE: 877-590-7366 or 817-590-2818
FAX: 817-590-0398 or 817-590-0505
www.penntexusa.com
tech@penntexusa.com

TESTING A PENNTEX CHARGING SYSTEM WITH A PX-7000 VOLTAGE REGULATOR

The PennTex PX-7000 4-Step (or 4-Stage) Voltage Test & Full-Field Test are different from other model regulator tests because of the unique PX-7000 connector. The regulator is usually mounted inside the vehicle under the right side of the dash and may have to be taken loose from the vehicle for access to the regulator connector. Voltage readings for the tests can be taken by firmly inserting a digital voltmeter positive probe into the wire holes in the back of the regulator connector. There is a moisture seal inside the connector that each wire passes through before coming out of the back of the connector. If the meter probe is inserted through the same hole that the wire passes through, the seal will not be damaged.



The connector moisture seal is the same shape as the rear of the connector housing. It has eight holes and is about 1/8" thick. Inserting a meter probe will stretch the seal hole but it will regain its previous shape. There are 3 steps to getting good probe/wire terminal contact: **1)** Have the regulator where the connector is accessible. **2)** Line the positive meter probe (A) up with the wire (E). **3)** Slide the probe firmly through the connector (B) along the wire until about 1/2" of the probe is inside the connector. You may have to move the probe in and out just a little to get probe/wire terminal contact. The best wire to get a feel for how this works is Wire #1 (Large Red). Have the meter turned on with a good ground for the negative probe, and the meter set to DC Volts. There should be voltage on wire #1 all of the time. Follow this 3-step procedure to get a meter reading and it will be easier to do the other wires.

PX-7000 WIRE CONNECTOR COLORS AND LOCATIONS

- | | |
|--------------|-------------------------|
| 1: Large Red | 5: Small Red |
| 2: Orange | 6: Blue with Red Stripe |
| 3: Blue | 7: Purple |
| 4: Black | 8: Plug/no wire |

PennTex
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DRAWING BY DMc UPDATED 05-06-2015

4-STEP CHARGING SYSTEM TEST FOR VEHICLES WITH A PX-7000 REGULATOR

Your Company Name: _____

Contact: _____

Phone: _____ Ext: _____

Fax: _____

Alternator Serial Number: _____

PX-7000 Serial Number: _____
(ON THE BACK-OPPOSITE OF THE CONNECTOR)

Vehicle Mileage: _____

Vehicle Year: _____ Make: _____ Engine: _____



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 website: www.penntexusa.com

PennTex Labor Assistance
Warranty Flat Rate Schedule

- Test Charging System using these forms: 1/2 (.5) Hour
- R&R Alternator: 1.0 Hour
- R&R Regulator: 1/2 (.5) Hour

-Any additional time is not payable by PennTex Industries, Inc.

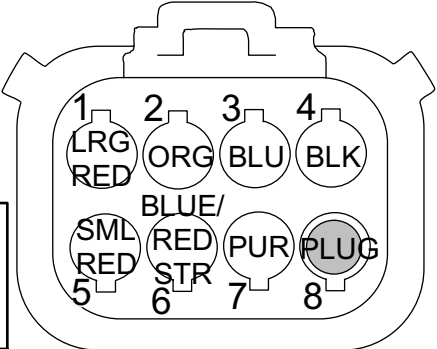
Your Shop Hourly Labor Rate:

\$ _____

Locate the external voltage regulator. Make sure that everything is properly connected. Make sure that the BLACK Regulator Ground wire has a clean & tight ground. Write the voltages from each wire in the chart using a digital volt meter set on the DC Volts scale:

VOLTAGE READINGS

Regulator Terminals ↓	STEP 1 Ignition Off Engine Off	STEP 2 Ignition On Engine Off	STEP 3 Ignition On Engine On	STEP 4 Ignition On High Idle
Field Terminal (Blue Wire) # 3				
Stator Terminal (Orange) # 2				
Power Terminal (Large Red) #1				
Voltage At The Battery				



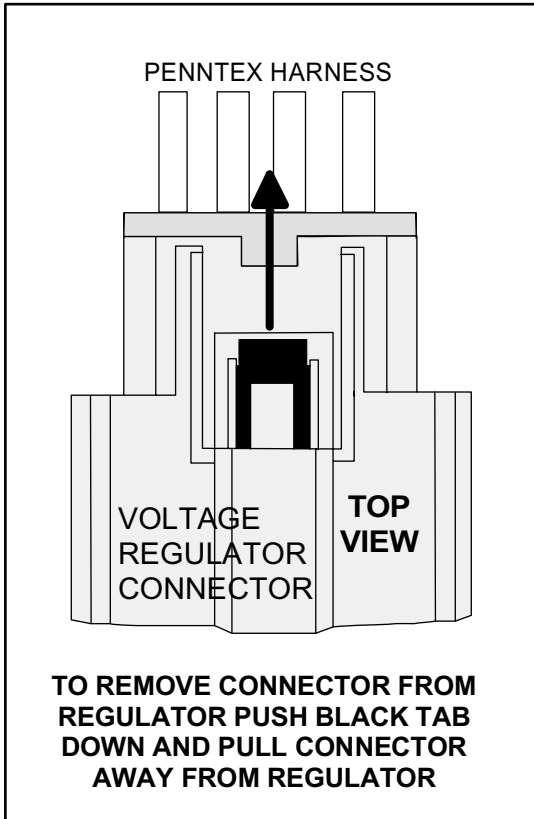
REGULATOR WIRE LOCATIONS FROM THE WIRE HARNESS SIDE OF CONNECTOR

PX-7000 REGULATOR CONNECTOR WIRE COLORS AND LOCATIONS:

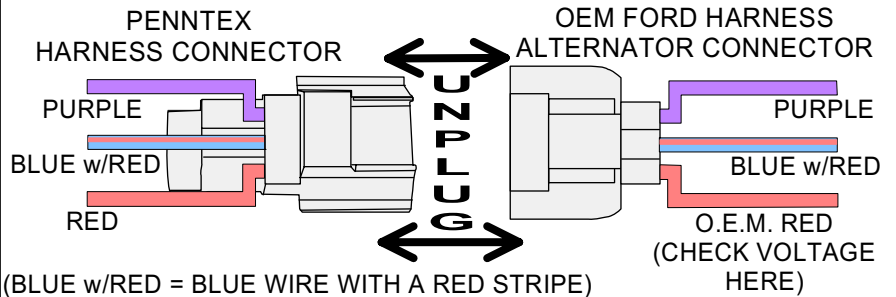
- 1: Large Red
- 2: Orange
- 3: Blue
- 4: Black
- 5: Small Red
- 6: Blue with Red Stripe
- 7: Purple
- 8: Plug/no wire

When this test and the Full-Field Test are completed fax them to 817-590-0398.
 We will review them and call your contact person.

PX-7000 REGULATOR FULL-FIELD TEST



LOCATE THE 3-WIRE CONNECTOR THAT USED TO BE PLUGGED IN TO THE ORIGINAL FORD ALTERNATOR. THE PENNTEX HARNESS IS NOW CONNECTED TO IT. UNPLUG THE PENNTEX HARNESS FROM THE FORD CONNECTOR BEFORE DOING THE FULL-FIELD TEST.

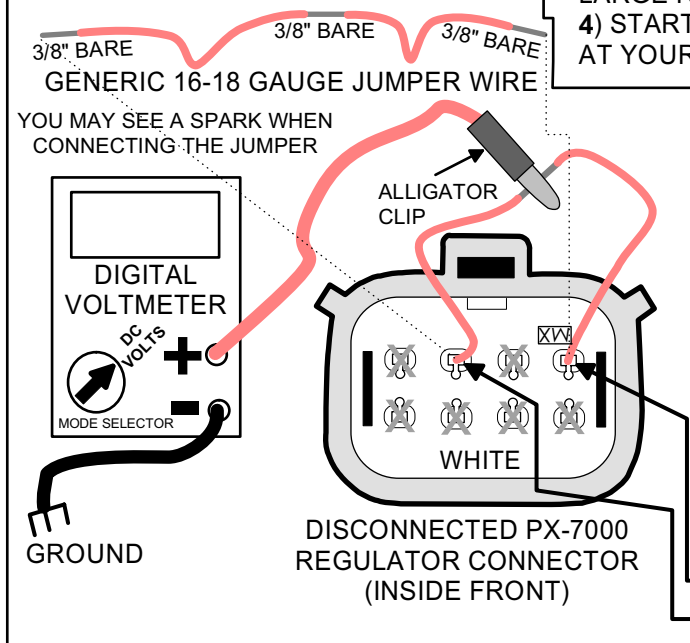


FULL-FIELD TEST PROCEDURE:

- 1) TURN OFF ALL VEHICLE ACCESSORIES.
- 2) DISCONNECT THE PENNTEX HARNESS 3-WIRE CONNECTOR FROM THE OEM ALTERNATOR PLUG. SEE DRAWING ABOVE. CHECK THE VOLTAGE ON THE RED WIRE IN THE O.E.M. FORD 3-WIRE CONNECTOR (YOU SHOULD HAVE BATTERY VOLTAGE.) THAT OEM RED WIRE VOLTAGE IS: _____ VOLTS.
- 3) LOCATE & DISCONNECT THE VOLTAGE REGULATOR CONNECTOR. SEE THE DRAWING AT UPPER LEFT. USING A 16-18 GAUGE WIRE, JUMP THE SOLID BLUE AND LARGE RED WIRE TERMINALS AS SHOWN TO THE LEFT.
- 4) START THE VEHICLE & RUN AT IDLE. CHECK THE VOLTAGE AT YOUR JUMPER WIRE. THAT VOLTAGE IS: _____ VOLTS.

NOTE: DO NOT RUN THE VEHICLE MORE THAN 20 SECONDS IN FULL-FIELD MODE. DAMAGE TO THE VEHICLE ELECTRICAL SYSTEM COULD RESULT IF THE ALTERNATOR OVERCHARGES.

- 5) RAISE ENGINE RPM TO 1000 RPM. CHECK THE VOLTAGE AT YOUR JUMPER WIRE. THAT VOLTAGE IS NOW: _____ VOLTS.
- 6) SHUT THE ENGINE OFF.
- 7) REMOVE THE JUMPER WIRE.
- 8) RECONNECT THE 3-WIRE CONNECTOR AND THE VOLTAGE REGULATOR CONNECTOR.



JUMP FROM LARGE RED WIRE LOCATION
TO SOLID BLUE WIRE LOCATION

NOTE: USING A JUMPER ON ANY OTHER COMBINATION OF WIRES MAY CAUSE ELECTRICAL DAMAGE

AFTER COMPLETING THIS TEST AND THE FOUR-STEP VOLTAGE TEST,
FAX THEM TO OUR TECHNICAL DEPARTMENT AT 817-590-0398.
WE WILL CONTACT YOU WITH THE RESULTS.

PENNTEX INDUSTRIES, INC. TECH LINE: 877-590-7366 FAX: 817-590-0398



CORPORATE OFFICE:
202 Plaza Dr., Manchester, PA 17345

Web site: www.penntexusa.com
email: sales@penntexusa.com
tech@penntexusa.com
May 2015

MANUFACTURING PLANT:
7620 Flagstone, Ft. Worth, TX 76118
Service/ Tech Toll-Free Line: 877-590-7366
Service/ Tech Fax Line: 817-590-0398

PENNTEX WARRANTY CLAIM FORM FOR DOWNLOAD

***** Note: **BOLD-ITALICIZED** areas are required fields for proper warranty evaluation. *****

CLAIM DATE: _____

Alternator Model #: PX-	SERIAL #:
Regulator Model #: PX-	SERIAL #:

SHOP NAME: _____ **PHONE #:** _____

CONTACT: _____ **ADDRESS:** _____

CITY: _____ **STATE:** _____ **ZIP:** _____ **FAX#:** _____

EMAIL ADDRESS: _____

YOUR REPAIR ORDER # _____ YOUR SHOP FLAT RATE: \$ _____ PER HOUR

Note: FOR US TO COMPLETE YOUR WARRANTY PAPERWORK, THIS FORM AND A FINAL COPY OF YOUR REPAIR INVOICE NEED TO BE RETURNED WITH YOUR OLD PARTS. REIMBURSEMENT FOR COVERED LABOR REQUIRES A NUMBERED INVOICE BECAUSE YOU ARE NOT REIMBURSED FROM THIS WARRANTY FORM ALONE.

VEHICLE OWNER (END USER) DATA: **VEHICLE OWNER:** _____

CONTACT: _____ **PHONE NUMBER:** _____

VEHICLE DATA: VEHICLE # _____

OEM MANUFACTURER: _____ **YEAR:** _____ **MODEL:** _____ **ENGINE:** _____

VIN # _____ **MILEAGE:** _____ **BUILD DATE:** _____

BODY MANUFACTURER: _____ **VEHICLE IN-SERVICE DATE:** _____

PennTex pays UPS Ground freight charges. If you want faster shipping, the difference in costs between Ground and Air can be deducted from your labor payment. Highlight the appropriate shipping below: If nothing is highlighted then UPS Ground is used.

UPS Ground **UPS 3 Day** **UPS 2 Day** **UPS Next Day** **UPS Next Day (Saturday)**

PennTex includes a prepaid UPS return tag to send back your defective parts. If you do not have daily UPS pickup,
Please highlight this box if you have an everyday UPS pickup at your address. highlight the box on the right.

(Note: ALTERNATORS WITH BURNED OUTPUT POSTS ARE NOT COVERED BY WARRANTY. ALTERNATORS THAT HAVE BEEN PAINTED, SANDBLASTED, OR REBUILT USING NON-PENNTEX PARTS ARE AUTOMATICALLY EXCLUDED FROM ANY WARRANTY COVERAGE.) ANY ADDITIONAL INFORMATION:

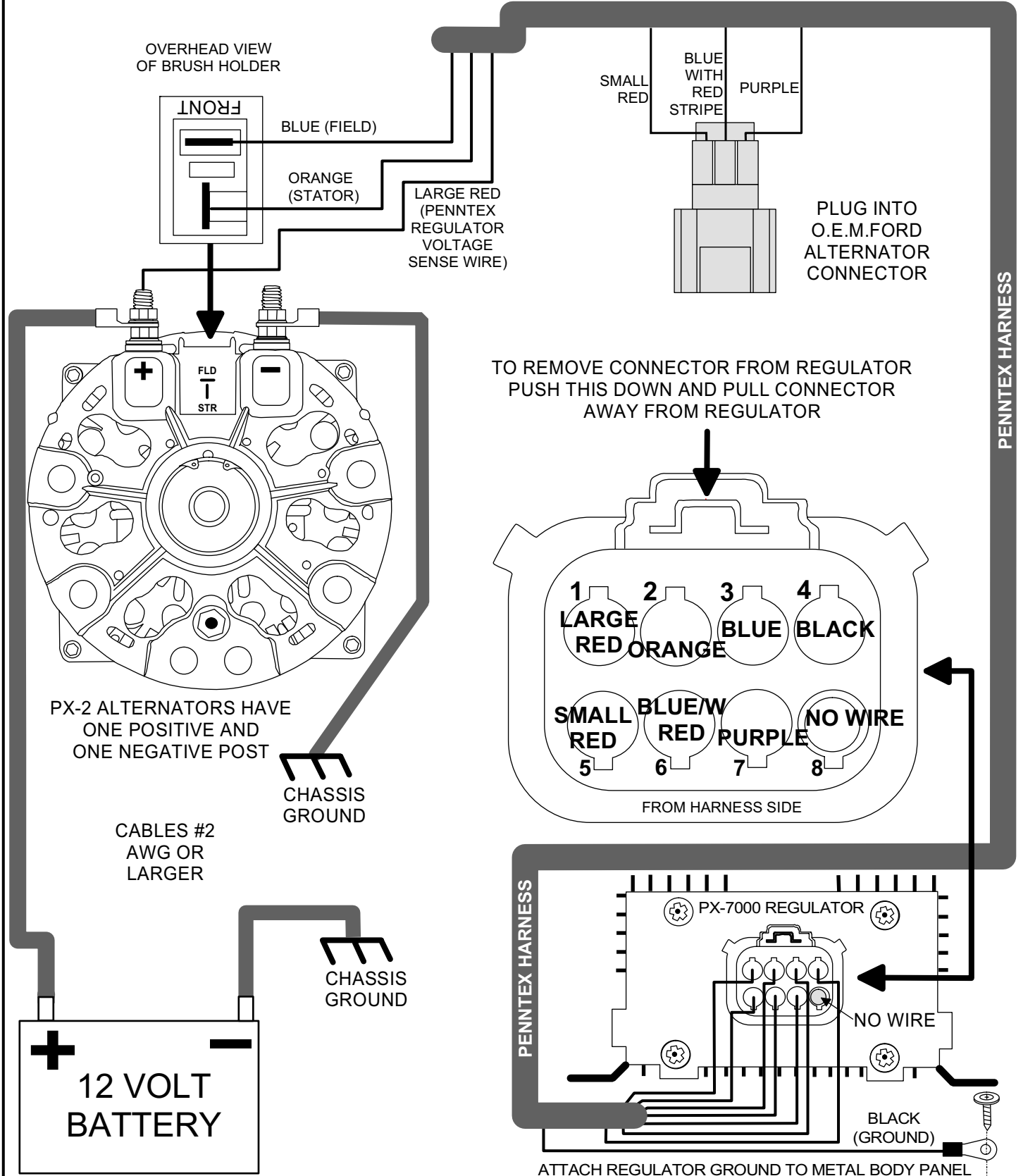
YOUR TOTAL LABOR AMOUNT (IF KNOWN)

\$ _____

Note: **BOLD-ITALICIZED** areas are required fields for proper warranty evaluation.

RETURN A COPY OF THIS COMPLETED FORM, YOUR FINAL INVOICE, AND THE DEFECTIVE PARTS TO THE FT. WORTH, TX ADDRESS. YOU WILL BE BILLED FOR ANY PARTS NOT RETURNED. PROCESSING STARTS WHEN THE PARTS AND PAPERWORK ARE RETURNED. WE CAN NOT PROCESS ANY LABOR CLAIM OR INVOICE SENT IN MORE THAN 90 DAYS FROM ORIGINAL WARRANTY REQUEST.

PX-220RC-A & PX220RC-T ALTERNATORS



PENNTEX HARNESS

NOTES: THIS IS A GENERIC WIRING SCHEMATIC FOR PX-220RC-A & PX-220RC-T CHARGING SYSTEMS WITH A PX-7000 REGULATOR. THIS IS NOT SPECIFIC TO ANY CERTAIN MAKE, MODEL, OR ENGINE.
 CHARGING CABLE SIZE: MINIMUM #2 AWG OR LARGER

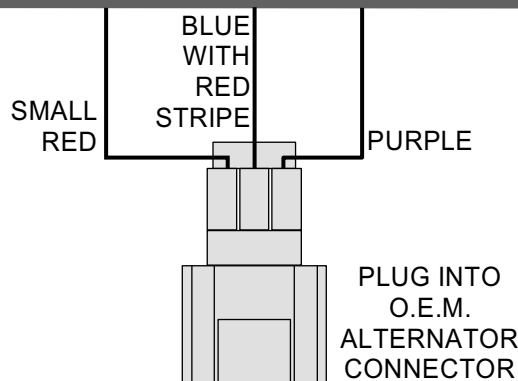
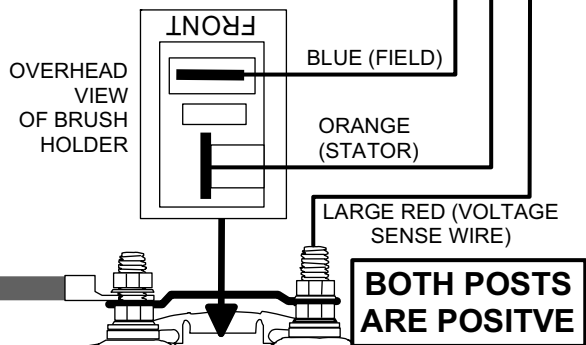
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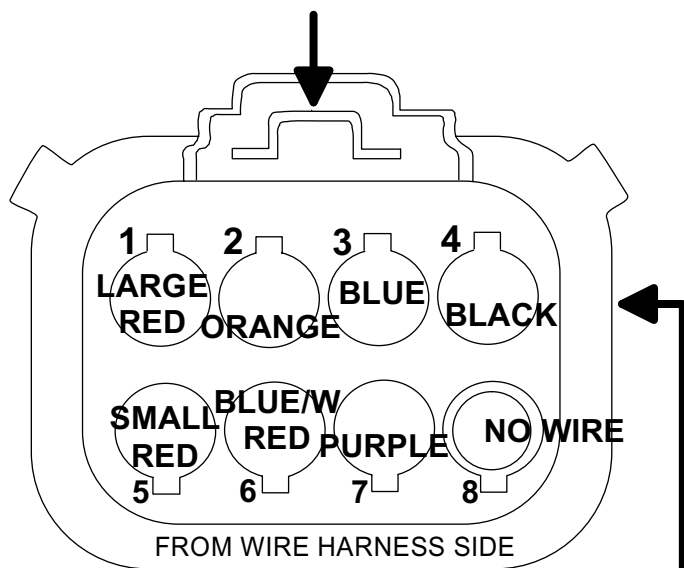
TITLE/DESC. GENERIC WIRING DIAGRAM FOR PX-220RC-A or 220RC-T ALTERNATOR WITH PX-7000 REGULATOR		
DATE: 05-11-2015	DRAWING NUMBER:	
DRAWN BY: DMc	REVISION:	CHECKED BY:
SCALE: NONE		PAGE: 1 OF 1

PX-520RDC (12-VOLT, 230-AMP) AND PX-525RDC (12-VOLT, 250-AMP) CHARGING SYSTEMS

PENNTEX HARNESS

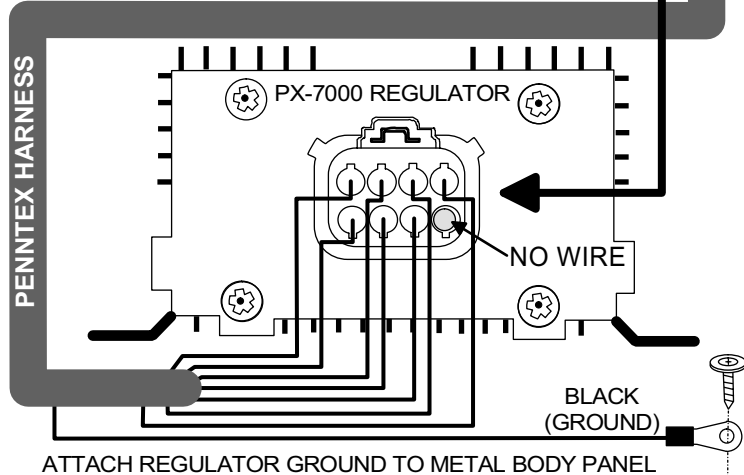
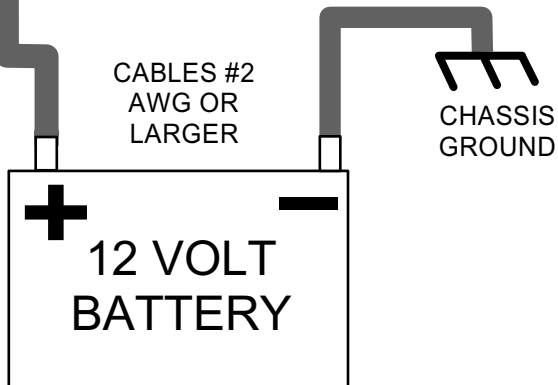


TO REMOVE CONNECTOR FROM REGULATOR PUSH THIS DOWN AND PULL CONNECTOR AWAY FROM REGULATOR



ONLY PX-5 ALTERNATORS MADE AFTER OCTOBER OF 2005 HAVE THE NEGATIVE DIODES IN THE REAR HOUSING. BOTH POSTS ARE POSITIVE AND ARE CONNECTED BY A BRIDGE BETWEEN THE POSTS. DO NOT REMOVE THE BRIDGE.

THE ALTERNATOR CASE GROUNDS TO THE BRACKET OR ENGINE.



NOTES: THIS IS A GENERIC WIRING SCHEMATIC FOR THE PX-520RDC AND PX-525RDC ALTERNATORS WITH A PX-7000 REGULATOR. THIS IS NOT SPECIFIC TO ANY CERTAIN MAKE, MODEL, OR ENGINE. CHARGING CABLE SIZE: MINIMUM #2 AWG OR LARGER

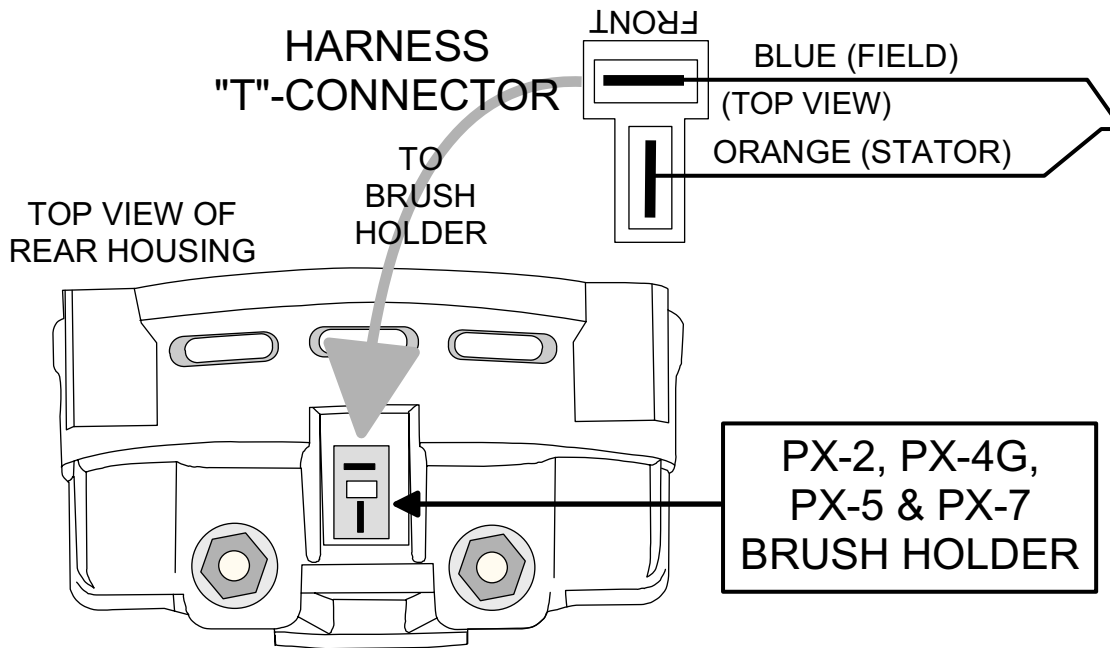
PennTex INDUSTRIES, INC.

FT. WORTH, TX MANCHESTER, PA

877-590-7366 www.penntexusa.com

TITLE/DESC. GENERIC WIRING DIAGRAM FOR 2009-UP FORD PX-520-RDC or 525RDC ALTERNATOR WITH PX-7000 REGULATOR		
DATE: 05-11-2015	DRAWING NUMBER:	
DRAWN BY: DMc	REVISION:	CHECKED BY:
SCALE: NONE		PAGE: 1 OF 1

CONNECTION OF "T"-CONNECTOR TO BRUSH HOLDER



BRUSH HOLDER "T"-CONNECTOR INSTALLATION:

THE BRUSH HOLDER TERMINALS ARE FIXED IN POSITION AND THE TERMINALS IN THE "T"-CONNECTOR ARE VERY TIGHT. THIS MAKES THE HARNESS "T"-CONNECTOR DIFFICULT TO INSTALL ON THE ALTERNATOR. FOLLOW THIS PROCEDURE TO INSTALL THE "T"-CONNECTOR AND PROPERLY ALIGN THE TERMINALS (SEE THE DRAWING BELOW).

- 1) START THE FIELD TERMINAL FIRST. 2) WIGGLE THE "T"-CONNECTOR TOWARD THE STATOR STATOR TERMINAL UNTIL THE STATOR TERMINAL STARTS GOING ON. 3) PUSH THE "T"-CONNECTOR THE REST OF THE WAY DOWN ON THE TERMINALS.

IT IS SUGGESTED THAT THIS BE DONE SEVERAL TIMES ON THE BENCH BEFORE INSTALLING THE ALTERNATOR ON THE ENGINE.

THE "T"-CONNECTOR WILL THEN INSTALL PROPERLY IN THE HARDER TO SEE POSITION.

