



Precision Parts

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# LIVE WIRE

## Welcome

*Greg Stuart*  
Engineering Manager

Welcome to the June 2003 issue of the "Live Wire" newsletter.

On pages two and three, Greg Stuart's **Technical** column for this issue covers trouble shooting tips on FOS315 applications.

On page 4, **Hot Stuff** covers DOA786 applications.

For more information on these articles or other information, I can be E-mailed directly at:

[gstuart@pprok.com](mailto:gstuart@pprok.com)

I look forward to hearing from you.

THANKS.

## Contact Us



By Phone: 1-800-654-3846 ext. 243  
Mon - Fri 8:00-4:30 Central Time  
Precision Parts Technical Support can answer your questions on cataloging and technical issues.



By Fax: 1-405-685-7215  
Mon - Fri 8:00-4:30 Central Time

Precision Parts Technical Support can provide you with technical information via fax line. Call or fax in your request and we can respond by fax or email. We can supply catalog information, copies of technical articles and service bulletins.



By Email: [techsupport@pprok.com](mailto:techsupport@pprok.com)

Combined, our technical staff has hundreds of years of experience diagnosing and correcting electrical system problems. We also have numerous resources available to help research and solve your toughest problems.



On the Web @: [www.pprok.com](http://www.pprok.com)  
There you can utilize our catalog, buyers guide, part number interchange, technical bulletins, past Live Wire issues, and more, any time day or night.

# Technical

Greg Stuart  
Engineering Manager

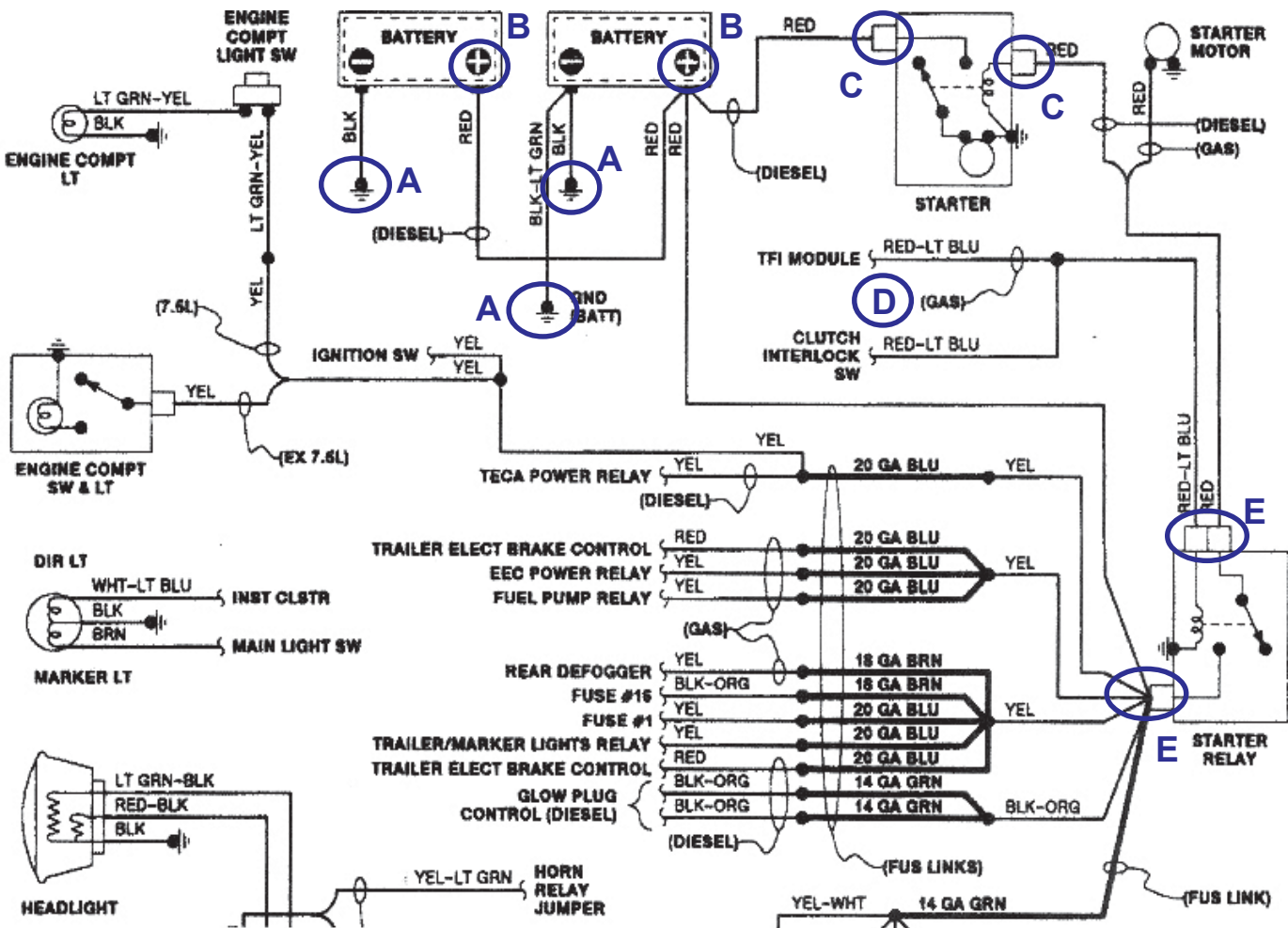
## FOS315

Problem Application: 1983 - 87 Ford All 6.9 Diesel Engines  
1988 - 94 Ford E150/250/350 7.3 Diesel Engines

\*\*\*\*\* #1 cause of starter failure or failure to operate is due to low ignition switch voltage and low battery voltage \*\*\*\*\*

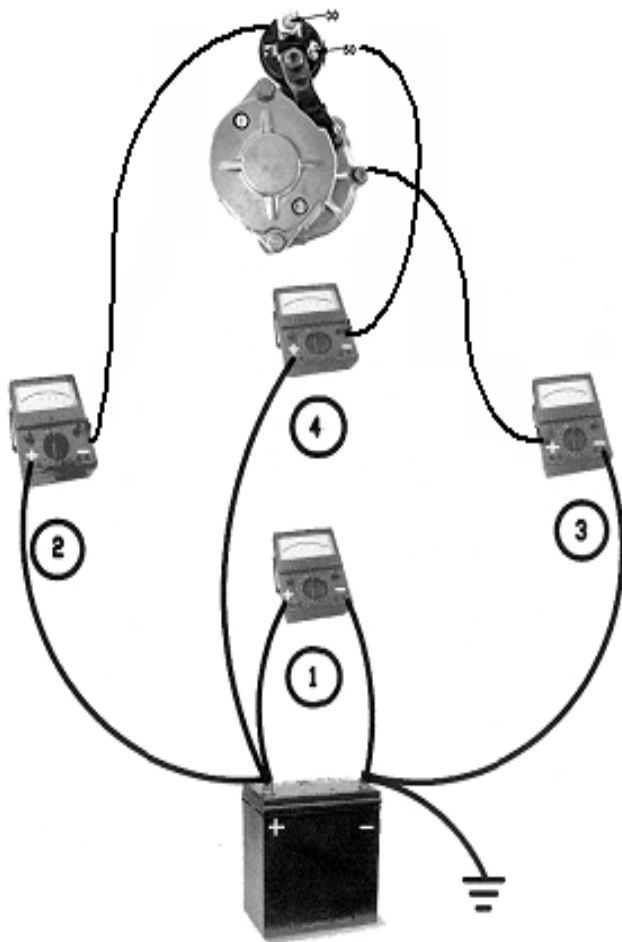
The major cause of the starters not operating on these applications is due to **high resistance** in the starter ignition switch circuit and low battery voltage due to poor battery and/or battery cable connections. If the starter does not operate or just clicks follow the instructions on page 3 and check the items below **before** removing the starter. Items to be checked are all battery ground connections (**A**), Battery Connections(**B**),**voltage drops in these connections will result in low cranking power or starter not cranking**. Starter Connections (**C**), Clutch Interlock Switch (or Gear Selector Switch if A/T) (**D**), Starter Relay Connections (**E**). Ignition switch and connections upstream from the Clutch Interlock Switch (**D**) must also be checked. **Voltage drops across any of these items will keep the starter from operating correctly.**

Typical Wiring Diagram for Ford 6.9 and 7.3 Diesel



# Starter System Voltage Drop Steps

\*\*\* All steps must be done while cranking the engine \*\*\*



If you have questions concerning these tests or require further information on performing these tests please call Precision Parts and Remanufacturing **Technical Service at 1(800) 654-3846**

**Step 1** Record voltage at the battery while cranking the engine.  
 Volts

**Stop** If the battery has **less than 10 volts** while cranking, the **battery is bad.**

**Step 2** Record the voltage drop at the starter while cranking the engine.  
 Volts

**Stop** If the voltage reading is **over .2 volts**, **Repair:** the battery cable and all connections; connections must be cleaned and repaired.

**Step 3** Record the voltage drop at the starter housing while cranking the engine.  
 Volts

**Stop** If the voltage reading is **over .2 volts**, **Repair:** ground cable and all connections; connections must be cleaned and repaired.

**Step 4** Record the voltage drop at the starter switch circuit while cranking the engine.  
 Volts

**Stop** If the voltage reading is **over .3 volts**, **Repair:** switch circuit, related components and all connections must be cleaned and repaired.



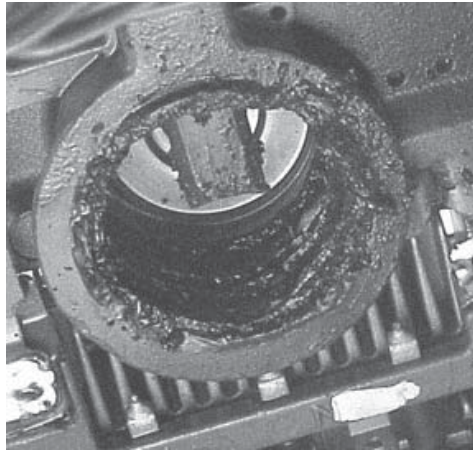
# HOT STUFF

The DOA786 can be a difficult application. We have searched diligently for technical service bulletins regarding the charging systems, and have not found any.

However, by checking incoming cores over a period of months, we have detected a consistent pattern of **oil soaked** alternators. Whether the units are OE, or remanufactured, the trend is the same. The units often are coated all over, making it difficult to determine a set source of oil leakage.

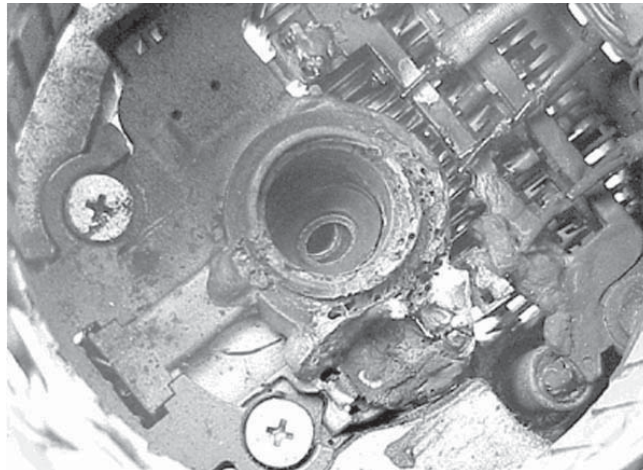
This causes problems in more than one way:

1. **Oil accumulation** in the brush to slipring area, resulting in premature brush wear, and excessive grit build up. See following image.



2. **Reduced heat dissipation.**

3. On occasion, we have seen cores that had internal **fires**, possibly attributed to oil contamination. See image below.



While not all DOA786 application charging problems can be attributed to oil contamination, it certainly is a factor to be addressed to improve charging system reliability. When a core arrives at your store with oil contamination, it needs to be pointed out to the customer as a problem to be addressed. Curing oil leaks also can benefit other systems in the under the hood area, if for no other reason than improved heat dissipation.

