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A WORD FROM THE EXECUTIVE DIRECTOR
Jumping Another Hurdle!

AUTO ELECTRIC CORNER
Denso 19249 Starter, Volvo Alternator Return, PCM Bypass

40 MT Comm End Drain

A WORD FROM THE EXECUTIVE DIRECTOR
Jumping Another Hurdle!



If you haven't encountered the new pricing for field coils hang on to your hat! Our friends that currently manufacture the major percentage of copper field coils, BBB Industries, who purchased the Wilson Field Coil Company some years ago have decided to increase their pricing for all copper fields they produce. The increase was not incremental in any way shape or form, meaning it was not consistent with the increase of the price of copper and not tied to any labor or other costs. I believe they just picked a number! A BIG number! to charge. Some of the coils are now costing us well in excess of a hundred dollars a set.

Why this sudden increase? We don't and never will know! We can only speculate! Of course, there have been price increases in copper in the last few years, regardless of that and the cost of labor increases it still does not warrant this excessive increase. Either they have not kept up with monitoring that division of the company closely enough for too long or maybe they just don't want to supply the competition with product anymore. There is no doubt that the number of coil sales has decreased also and will now decrease faster than ever! This is not the first decision made by management or a bean counter that has gone horribly wrong! Whatever the reason, we as rebuilders must once again adjust.

Some of our vendors are actively seeking new suppliers for these products. This won't be an overnight fix! It will take a lot of time, months or years to fully replace the entire line. Another huge factor, I'm sure, will be the sales volume of each number to decide its worth in the lineup.

How do we as rebuilders cope with such huge price increases? We will have to look at our options, can we supply a unit that no longer uses field coils i.e. permanent magnet units and sell an alternator to replace the generator and regulator. Many of us gave up on repairing or re-wrapping fields years ago. Maybe we need to blow the dust off the spot welder and revisit the way we did things back then! Don't overlook the value of the units in your core barrel, that just increased also! Or we can keep doing business the way we have done in the past and just increase our selling prices accordingly.

Whichever way you choose to deal with this dilemma, do it with your eyes wide open, pay attention to new unit costs vs rebuilding and/or selling your customer an alternate unit which could equate to you being a step ahead of the competition, namely the internet! Lastly, communicate with your customer, you may be higher in price than the next guy until this all shakes out! Let them decide which product they want to purchase when given the facts, you will not end up looking like a thief or the bad guy!

Hang in there, it's just another hurdle!

Mike Schroeder

NEW ERA MEMBERS

SJ, LLC
Wilsonville, Alabama

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CONTENTS

2 A WORD FROM THE EXECUTIVE DIRECTOR
2 NEW ERA MEMBERS
4 AUTO ELECTRIC CORNER — Denso 19249 Starter, Volvo Alternator Return, PCM Bypass
12 40 MT COMM END DRAIN
15 CLASSIFIED ADS

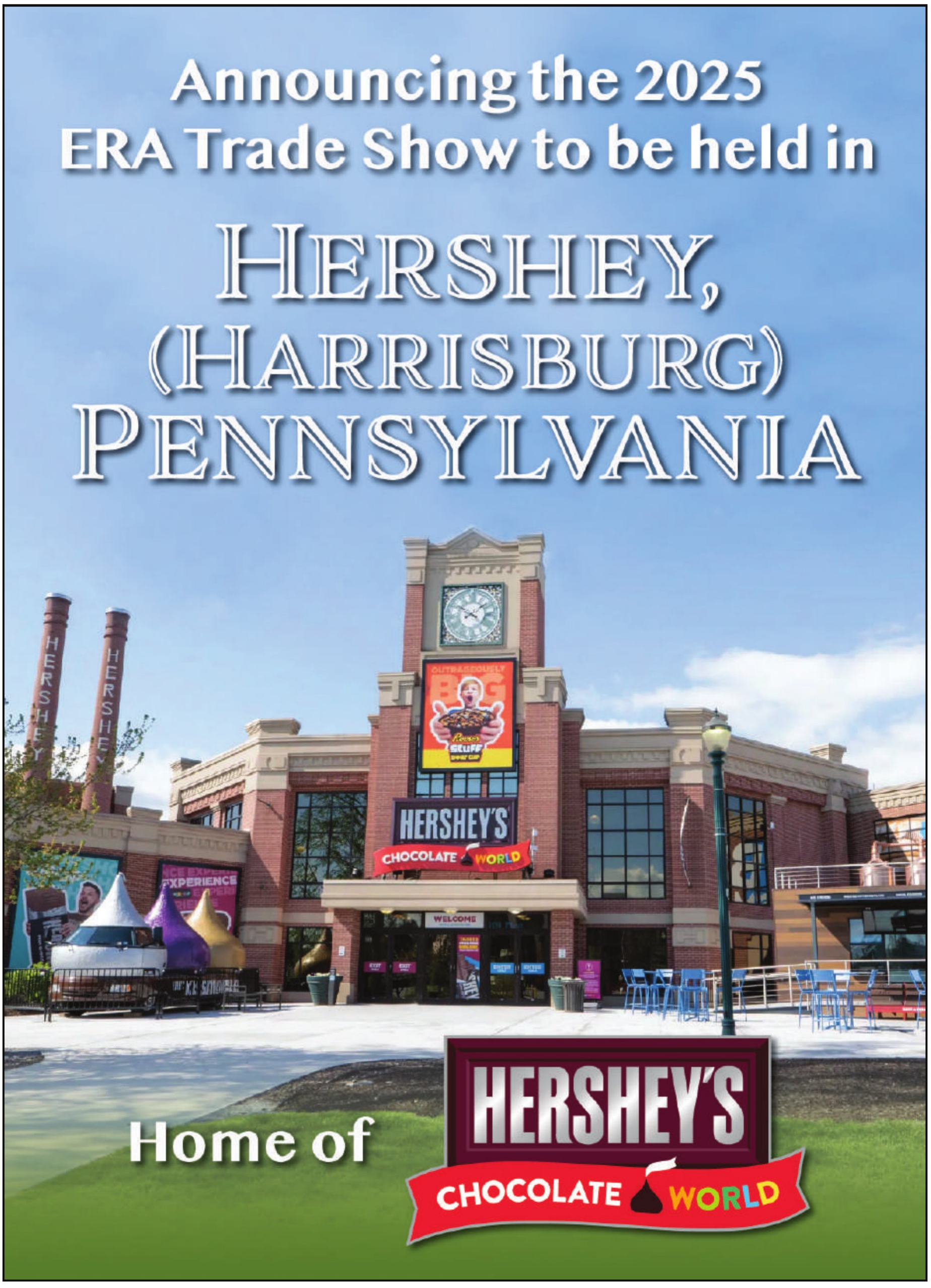
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AUTO ELECTRIC CORNER —
Denso 19249 Starter, Volvo Alternator Return, PCM Bypass



BY MOHAMMAD SAMII

The highly used Ford PMGR 3267 starter that fits a variety of Ford trucks and vans from 2009 up to 2013 has been replaced with a 19249 Denso starter (438000-7540) that is a slightly more powerful starter, with 1.6 KW as compared to Ford's 1.4 KW. (*Figure-1*)

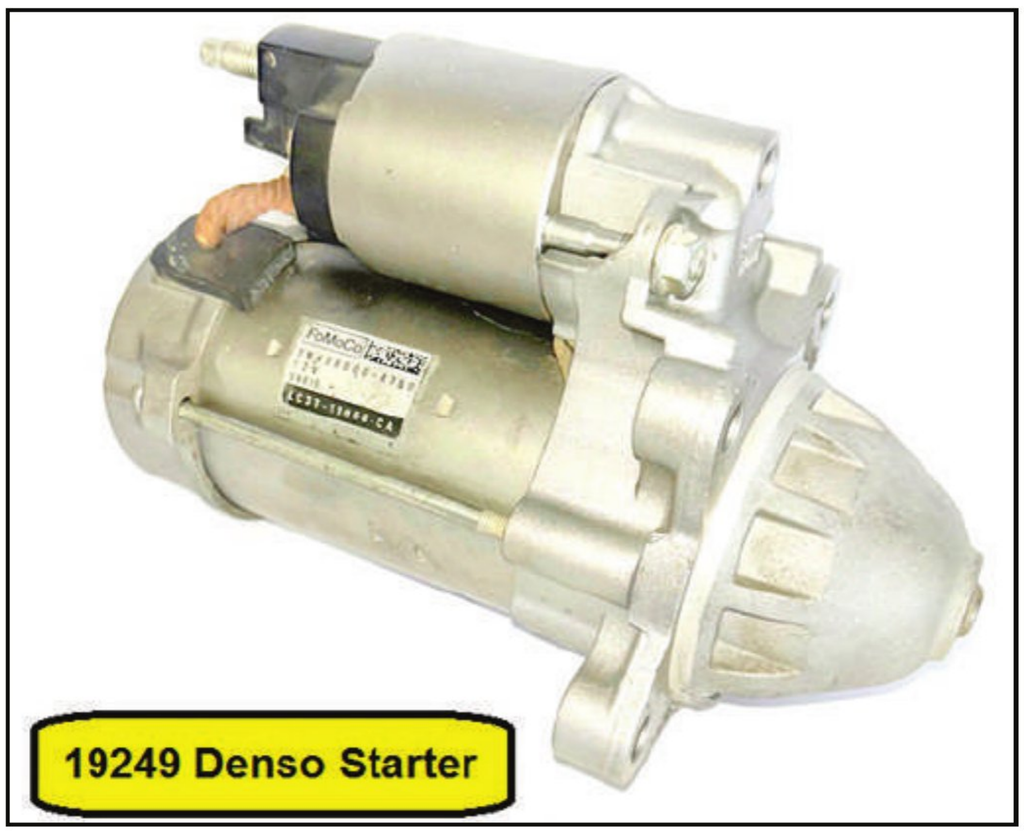


Figure 1 – Denso 19249 (438000-7540) Starter

Due to its low cost of replacement (clones), I am not sure rebuilding it is always feasible but this starter still commands a good price at auto parts stores ($200+), so if it is not exploded, it may be practical to rebuild it with a slight savings. There are millions of them on a variety Ford trucks and vans, so the possibility of getting a call for it is high, and thus I decided to showcase the unit as a guide for you, if you ever decided to rebuild one. I also would like to mention since I am getting close to retirement and closing my business, this is probably one of the last units that I am documenting and showing its breakdown! (*Figure-2*)

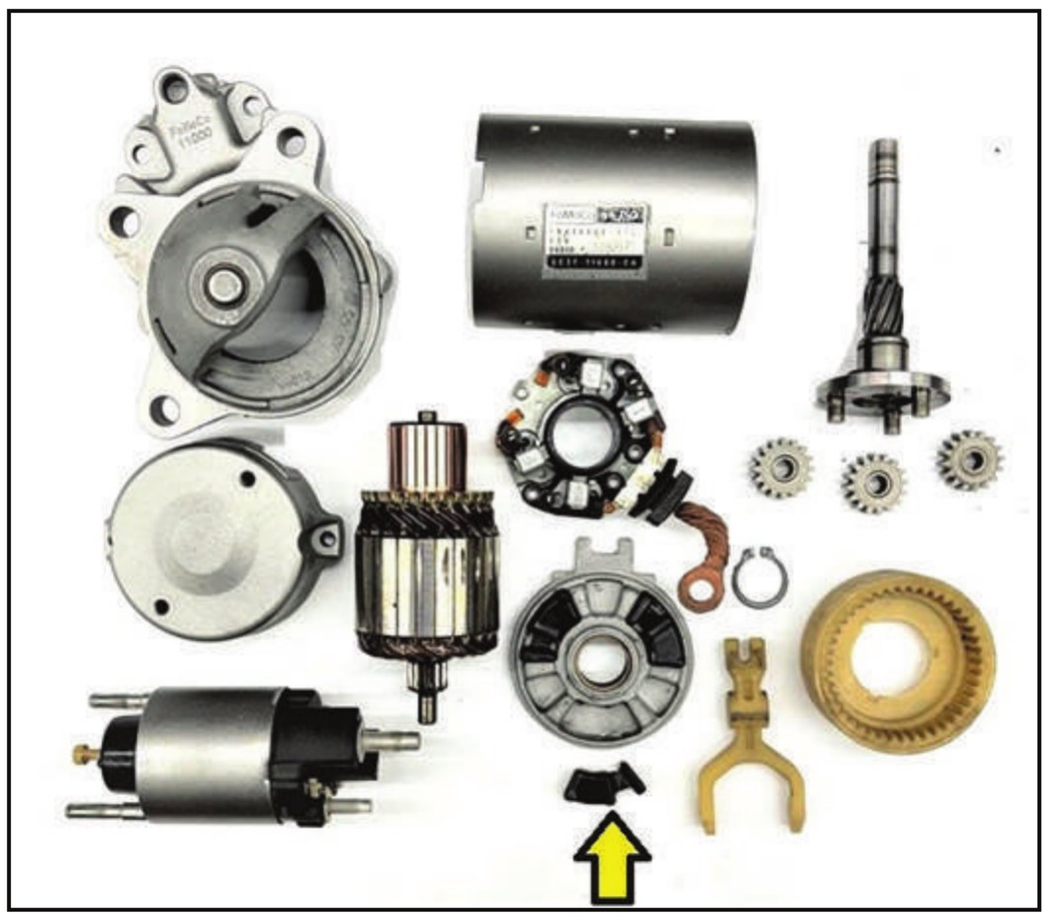


Figure 2 – Breakdown of Starter Showing Major Components

The tear-down is very common for such a small starter but a unique feature of this unit is the cushion plate and three rubber cushions that attaches to the drive side of the ring-gear of the reduction mechanism (*Figure-3*). It seems

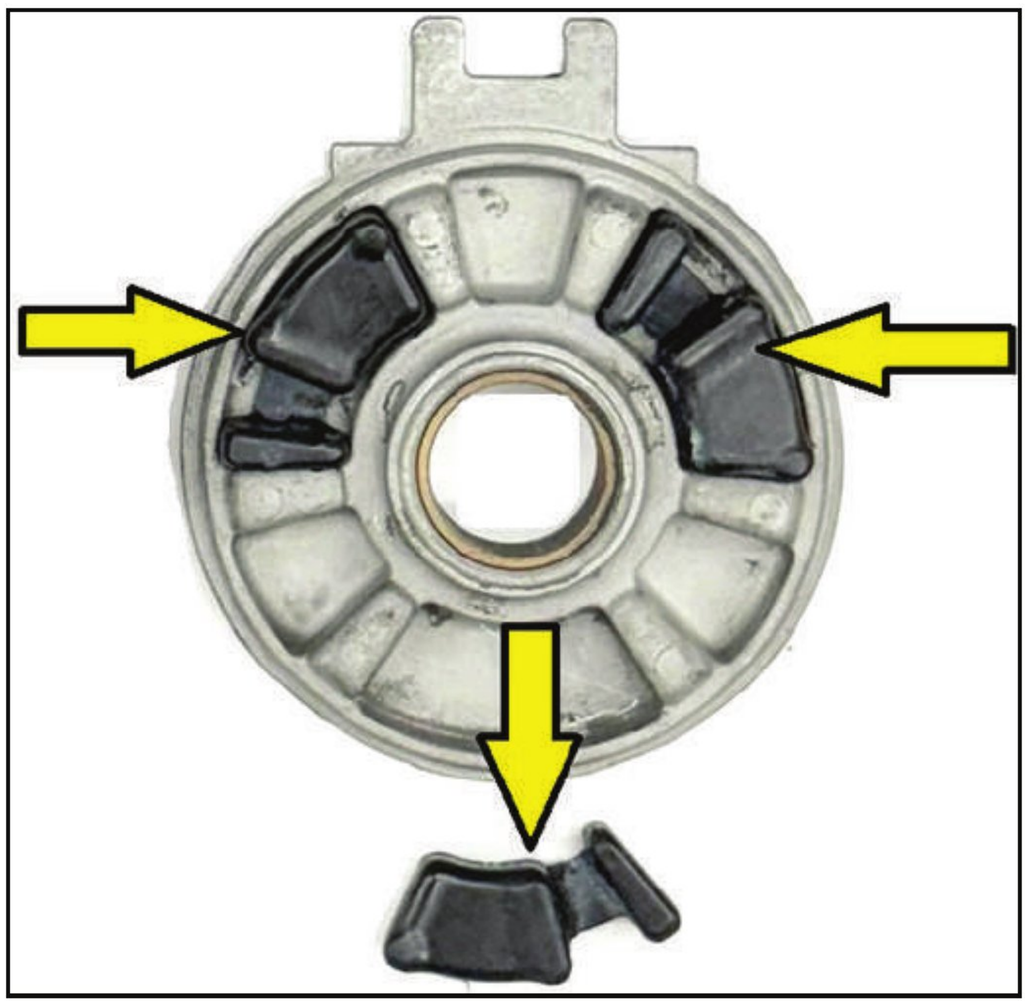


Figure 3 – Plate and Cushioning Rubber Pieces



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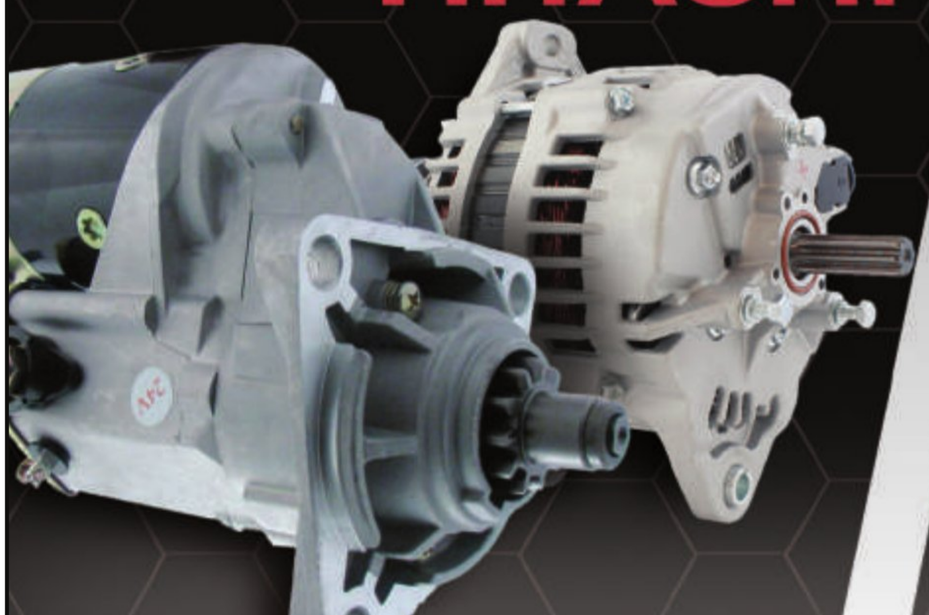
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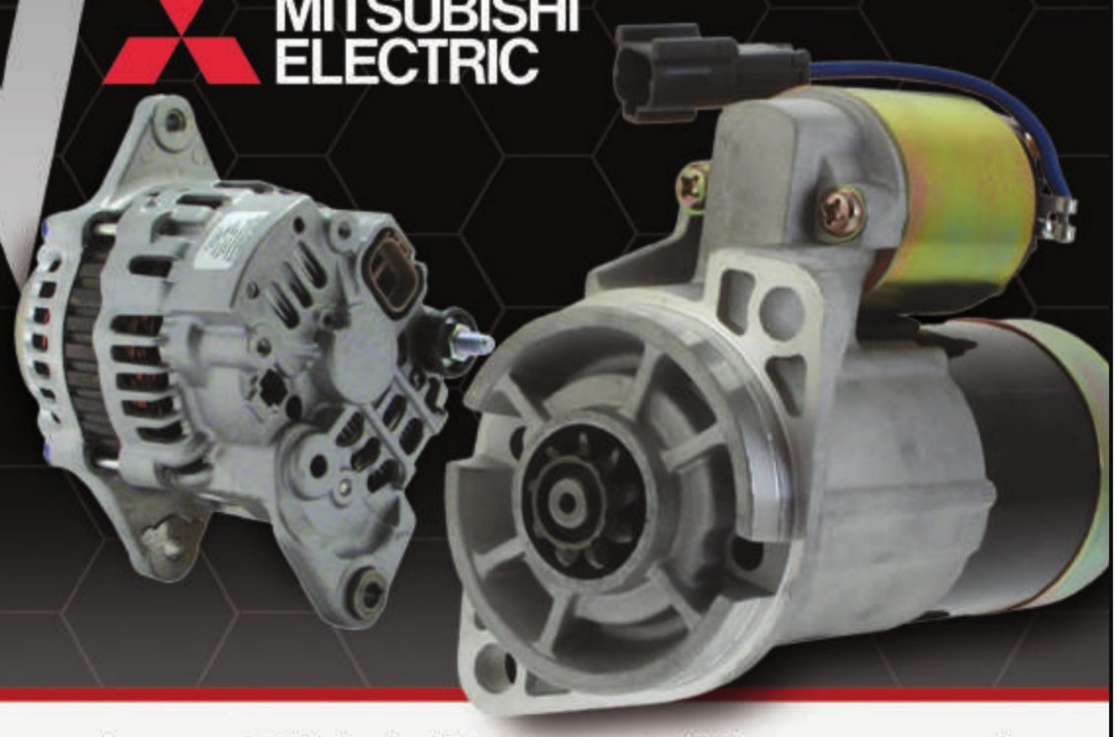
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like a clever design and obviously the designers thought it be beneficial to have it for a smooth engagement and operation. The drive assembly and the reduction gear mechanism are typical PMGR design but a little more robust. I believe this starter is also used on some later models of Ford trucks with the Stop-Start system. (*Figure-4*)

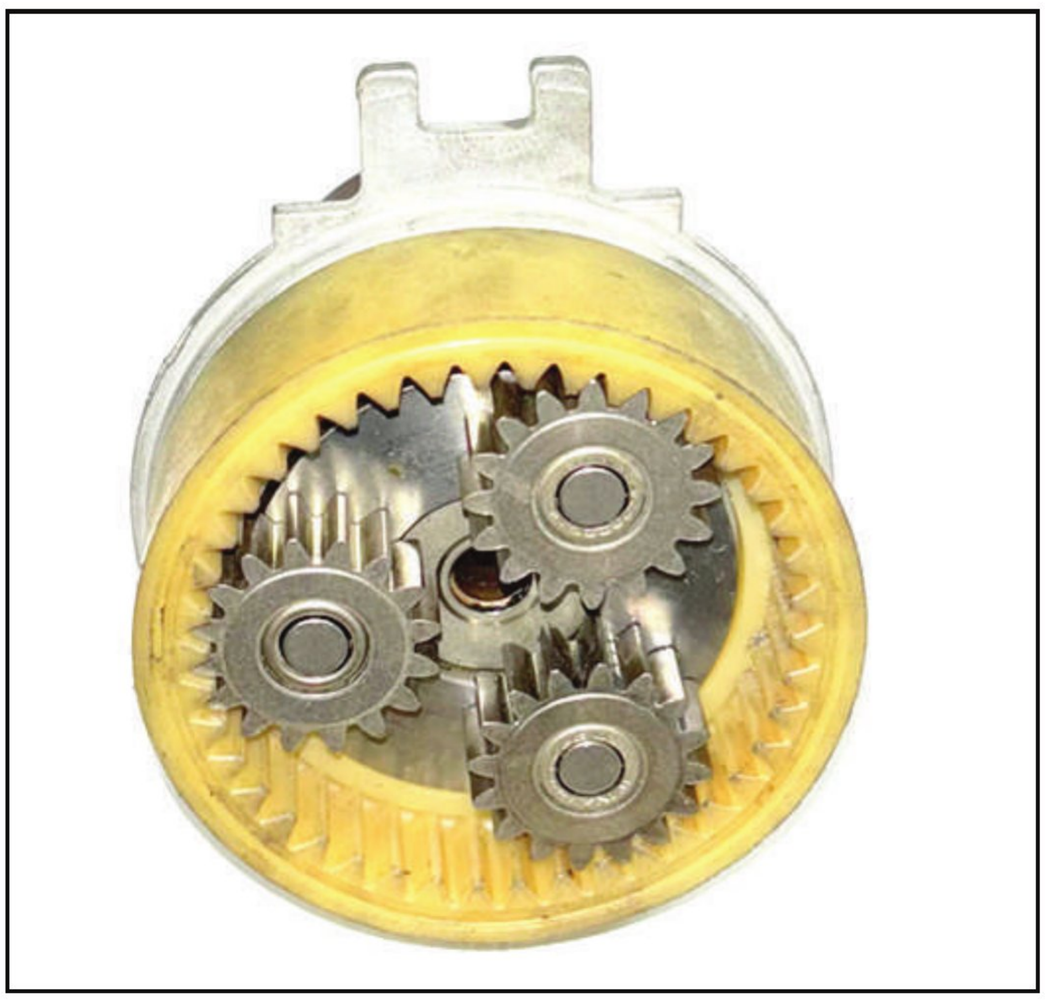


Figure 4 – Sturdy Reduction Gear Mechanism

The unit I was working on belonged to UPS and since then we have done a few more for them and have sold them some OE new ones. They have some Ford E-350 Super Duty vans used for delivery, and practically these are the very first sales I ever had with a UPS garage in my 45 years of being in business in this town, and interestingly enough in the last couple of months of my business. The new supervisor has discovered that I can be helpful without them taking a vehicle out of service for a long wait for a new starter.

In a side note: when I posted a question on the website asking if anyone knew of any industry supplier who could provide this Denso starter (Denso Sale's #281-8401), the OE one and not the internet look-alikes which are plentiful, a resourceful ERA member (Seth Lancaster of Anchor Motorworks of Versailles, MO) gave me a lead and the link to an eBay seller who had a few of these available at very reasonable prices ($95 plus shipping) which I immediately obtained a couple. That was a bargain against the $460 that my local Ford dealer was asking for, and that's when the ERA membership pays off. Thank you Seth…!

Volvo Alternator Returns…!

In the October 2023 issue of the Exchange I wrote about an 11346 (Bosch 0-125-811-052) alternator that we did for the good customer of ours just across the street. That job was done in the July of 2023, thus it was surprising to me when they called complaining about



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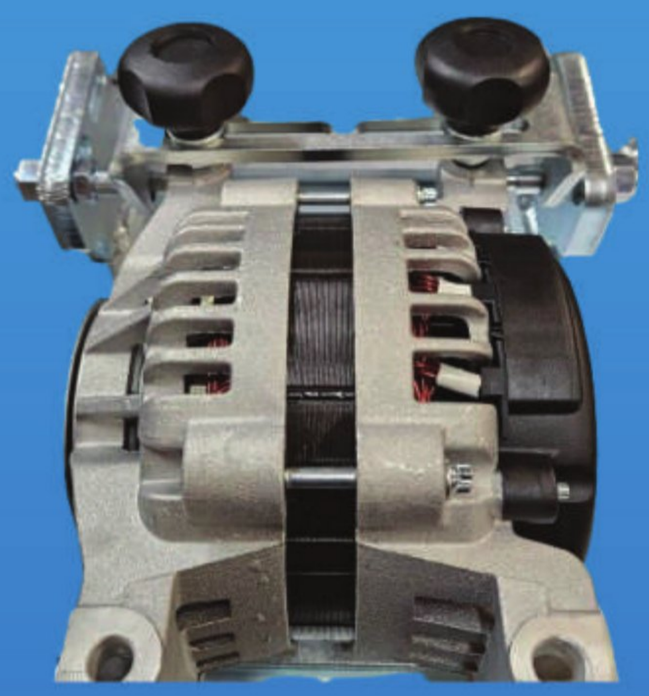
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issues with that car's charging system in late June of 2024. As I indicated in that article, knowing Volvo's sensitive electronics, I made sure to install an OE regulator along with an OE clutch pulley in addition to a new slip-ring and bearings which were needed badly. (*Figure-5*)



Figure 5 – Volvo Alternator

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So the alternator was removed and brought in for testing. This time I opted not to remove the pulley but managed to spin it adequately with the test bench's 4-groove belt laid around the flat part of the clutch pulley, and it worked.

The alternator checked fine and when it was returned to the shop, they informed me they had found the problem. The drive gear that contains the toothed belt that surrounds the alternator's cutch pulley (*Figure-6*) was broken (*Figure-7*), so the alternator was not being spun fast enough or spun at all to generate sufficient output.

They ordered the necessary part from the dealer which required a week of waiting, but when it, as well as the same alternator were installed, the charging system worked perfectly fine. The question that arises is how this situation would have been handled if the alternator was purchased online or shipped from a seller across the country? A replacement alternator would not have solved the charging problem…so then what…?!! Just some food for your thoughts…!

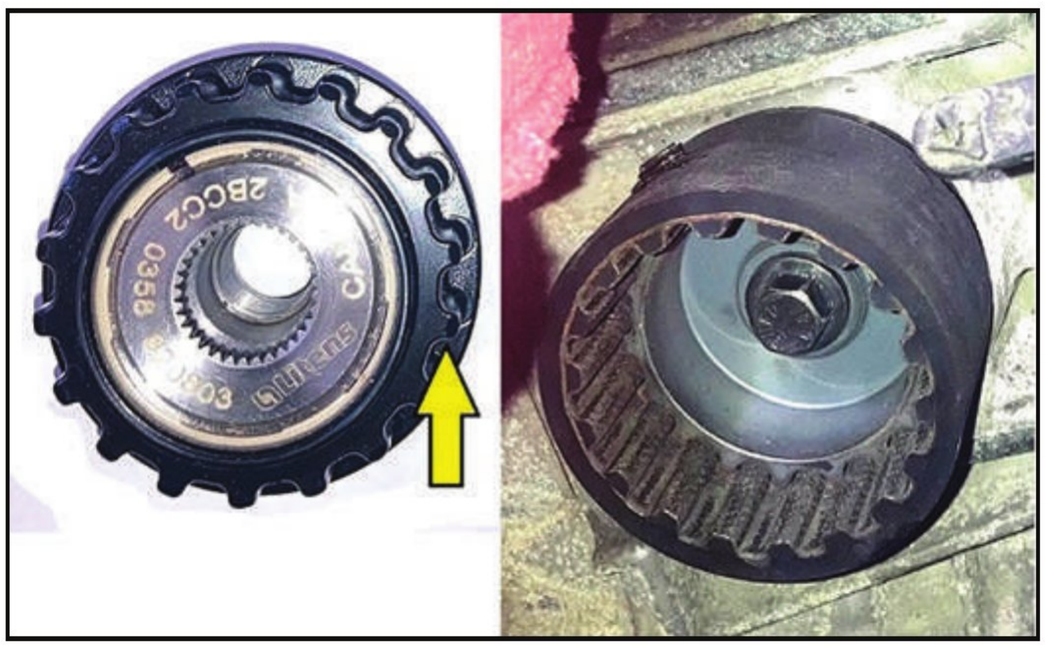


Figure 6 – Volvo Alternator Drive Gear

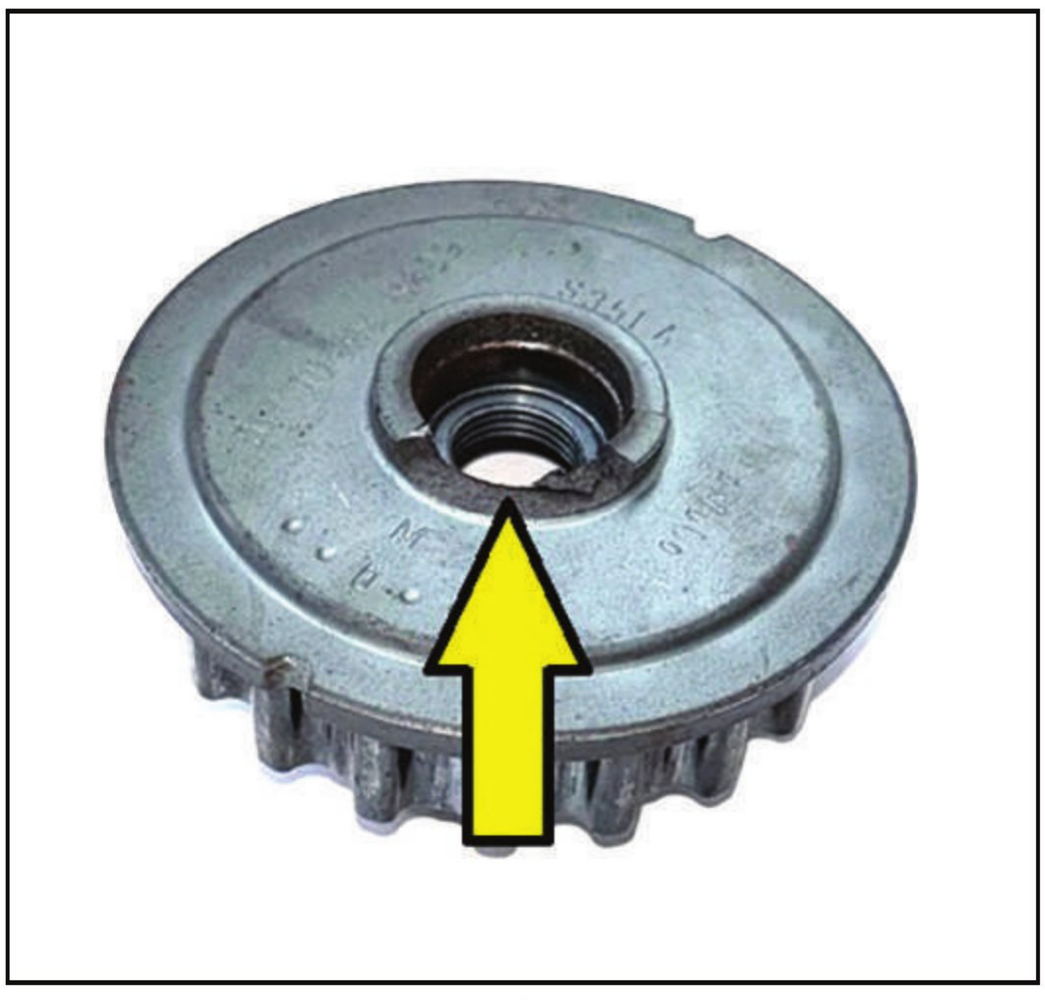


Figure 7 – Broken Drive Gear

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PCM Bypass…!

As much as I do not like the idea of bypassing the voltage regulator function of a Chrysler product's PCM that has failed and requires a new or a reman unit, but the economic realities and at times, the value of the vehicle in question requires such modification. Another persuading factor is the availability of the older PCM and the quality of some used or remans in the market which makes the idea of bypassing a lot more acceptable.

Our most recent case was this 2001 Dodge RAM 1500 truck that the owner (a plumbing contractor) had removed all of his add-on tool boxes, ladders and other equipment and had the vehicle for sale but it would not charge. As customary, the alternator and the battery were replaced but the end result was the same…not charging, and now, he came to us for rescue as a last resort…!

First thing was to confirm the charging problem and then, why it is not charging. Lack of the battery being charged was confirmed and now was the time to figure out why the new alternator was not working. This 13823 alternator has a #363 plug code (*Figure-8*). By removing the plug from the alternator and inserting my test plug while applying +B to one wire and grounding the other one, it was confirmed that the alternator was indeed working fine, thus the problem should be in the control side which is in the PCM.

I have written about the different types and evolution of the Chrysler's Computerized Charging System here in the exchange and have talked about it



Figure 8 – 13823 Alternator for Dodge Truck

repeatedly in many ERA Shows. A look into the charging system schematic of this truck which is shown in an abbreviated version in *Figure-9* indicates in this configuration (which I have called it System-2 in the Seminar handout), the PCM applies a solid IG+ to the alternator (F1) as a source of field current, and toggles F2 to ground for control. These two lines are called Circuits K125 and K20 respectively in Chrysler jargon. (*Figure-10*)

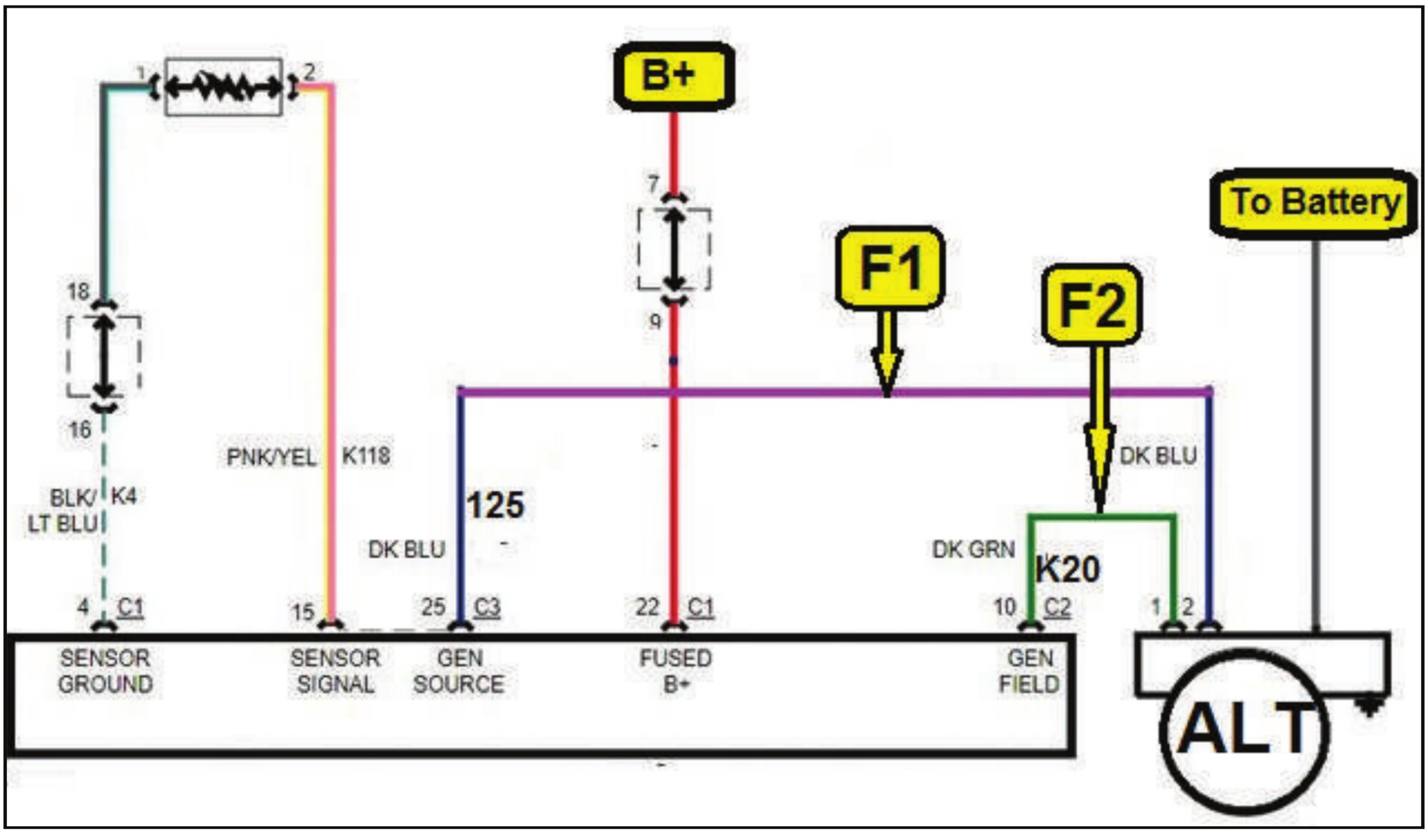


Figure 9 – Dodge Truck's Charging System Schematic (Partial)

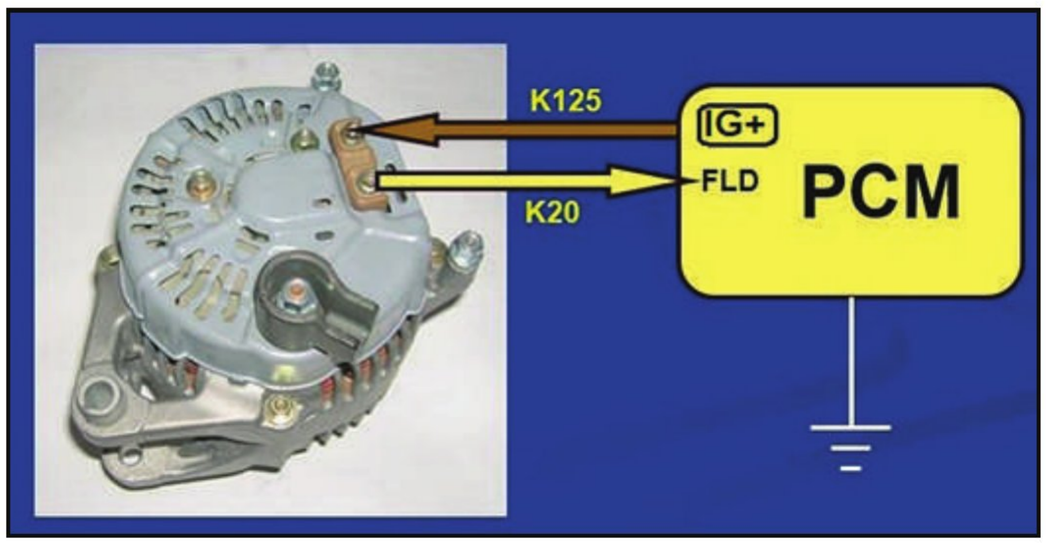


Figure 10 – System-2, PCM Applied Field Source and Control

Back to the truck: with the engine running and alternator unplugged, I saw I have power at the blue wire (K125) and no activity on green wire (K20) as it was confirmed with a test light (*Figure-11*).

The continuity of the wire from the alternator plug to the PCM (Pin #10 at Connecter #2) which is partly hidden on the right side of the firewall was checked to be fine, so we had a failed PCM, after all of its grounds and power sources were confirmed.(*Figure-12*)

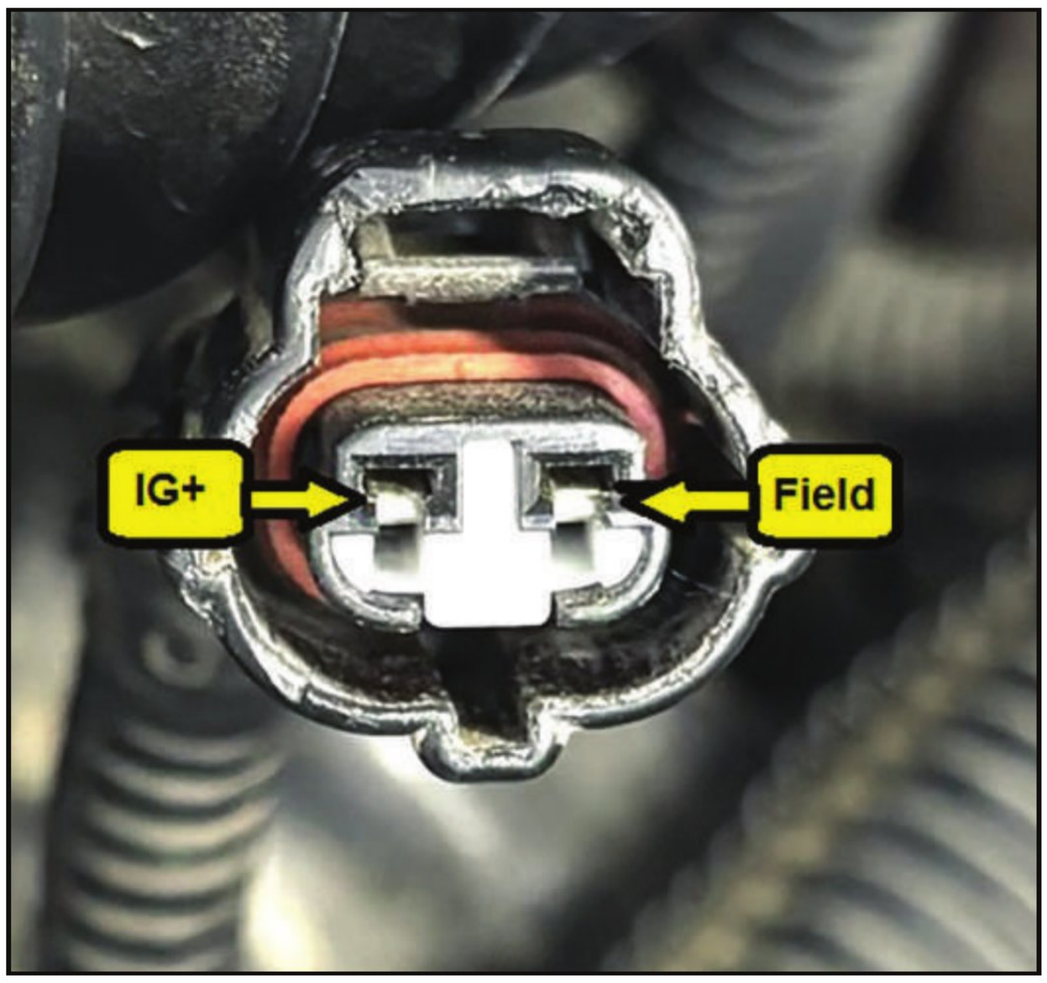


Figure 11 – Plug-in to the Alternator Showing K125 and K20 Pins

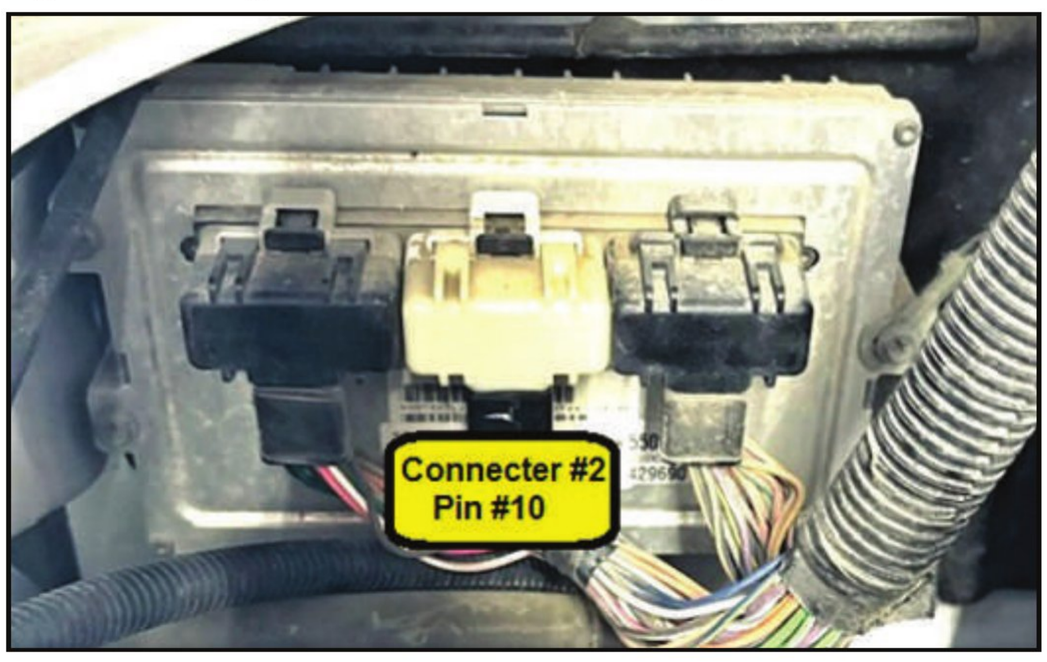


Figure 12 – The PCM Attached to the Firewall

A call to the customer was made, the repair options were given, and they decided to have us bypass the PCM to get the charging system working, so they can sell the truck. For this family of Denso alternators, the conversion regulator of the choice is a WAI IN8315 or equivalent but I did not have one at the time. The IN8315 regulator was actually made for earlier Denso alternators with two exposed 4mm F1 and F2 post but with a little work they can be used on later Denso alternators such as this. I had even shown such modification using a D7014 on a Bosch alternator on December 2023 issue of Exchange.

This time, what I had on the shelf was an old Transpo D7018 which is made to change old Chrysler Square back alternator (!) into a single wire system. I decided to use it with come changes and adapt it to the application on hand, that is an 13823 alternator for 2001 Dodge truck…a long way away from a Square Back Chrysler alternator…!

The regulator was mounted and its wiring was routed as you see on *Figure-13*. Running it on the test bench and applying the +B to the F1 pin made it to work. On the vehicle I used the K125 power that was applied by the PCM and cut the F2 (K20 line) inside the wiring loom since it was not needed. No other modification was needed and it all looked normal with the same plug into the alternator. It all worked fine and the charging system functioned properly and this truck was out of the bay.

Well, that's all for this issue. Until I see you again, keep up the good work and remain healthy.

You can contact Mohammad Samii by email at: sammyselectric@sbcglobal.net, or by calling the ERA Tech Help Line at 636-584-8324

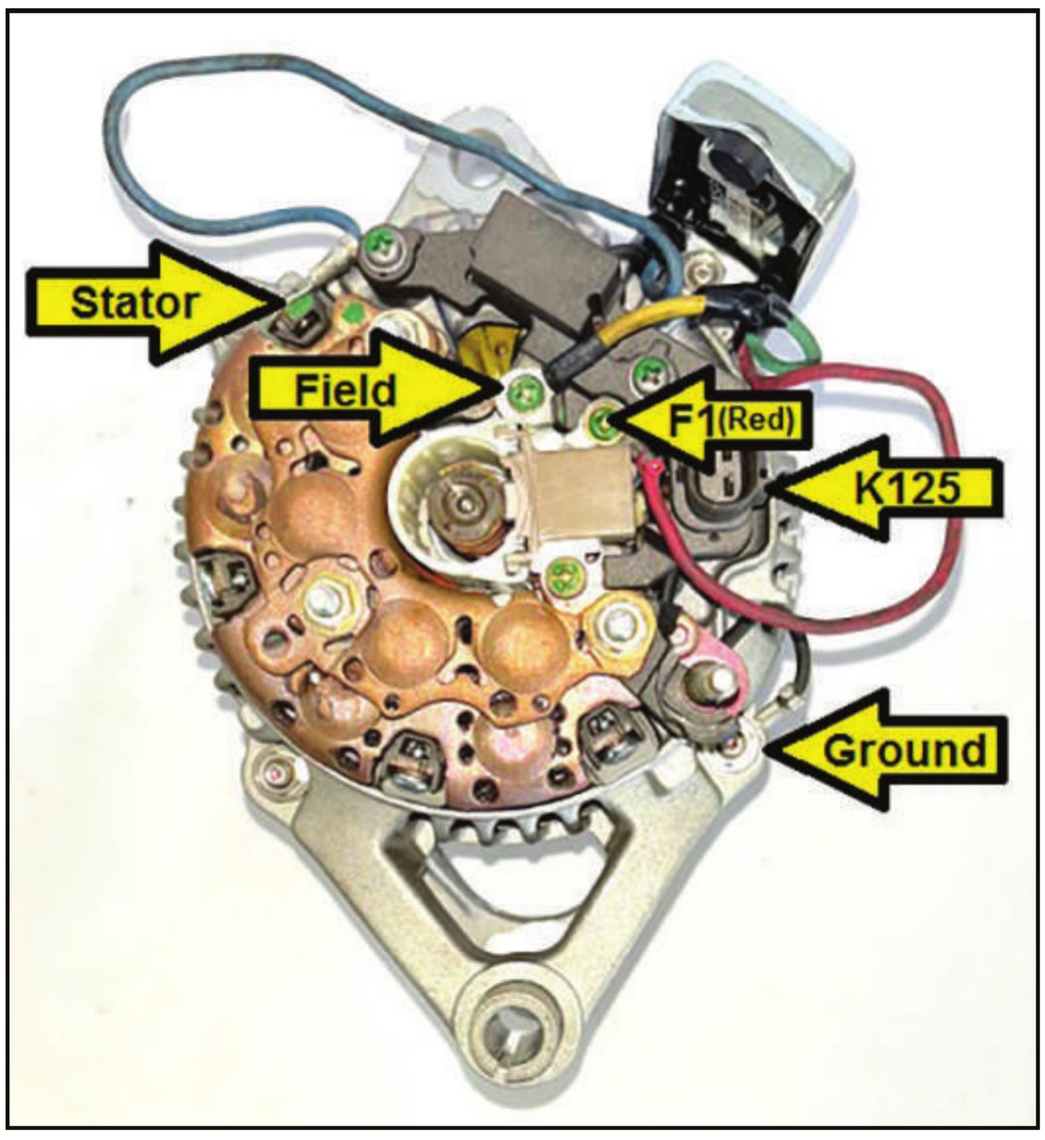


Figure 13 – Attaching a D7018 to the 13823 Alternator

40 MT Comm End Drain



BY LARRY HAGEMEISTER

During a routine rebuild of a 24-volt Delco 40MT starter (*Figure 1*) that we have literally done hundreds if not thousands of times, something caught our attention. The comm end plate is manufactured differently than most. This plate has a cast in drain slot for moisture to escape (*Figure 2*) and does not have the normal machined groove in the outer land for installing the large O-ring that seals the field case to the comm end (*Figure 3*).

We decided to research this comm end plate some more. According to Lester this housing is a Delco #1967553 it was used on quite a number of starters in voltages from 12 to 32. Some of the most common applications were for Case equipment and another notable starter that fits a John Deere 730 tractor electric start Delco number 1113830.

We're not sure if there were any reasons for the slot other than to keep moisture drained out of the field case. We all know that condensation and weather is a constant problem in these units! It would also become very important to clock the starter so the drain slot would be turned down!

Contributed by Larry Hagemeister, HEI Enterprises in Lebanon, Oregon

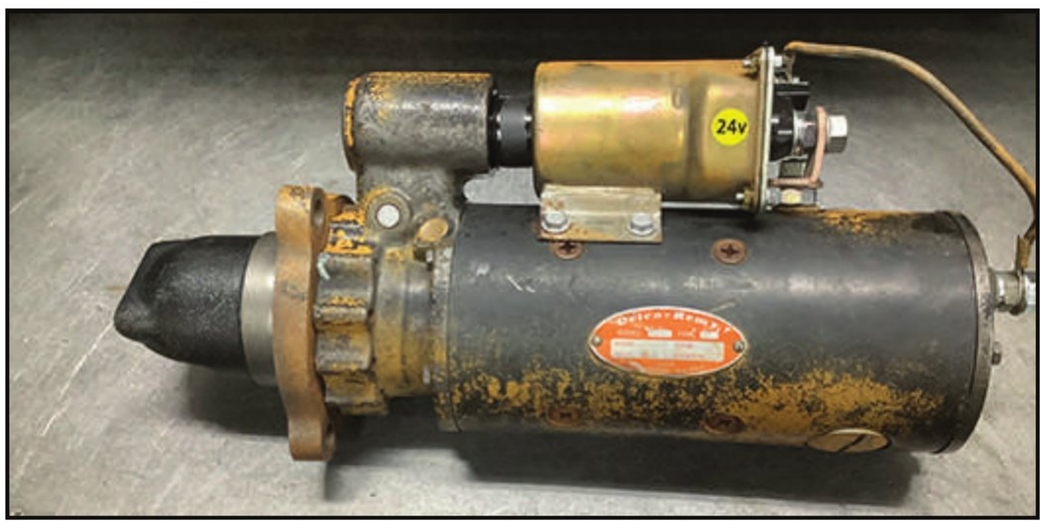


Figure 1

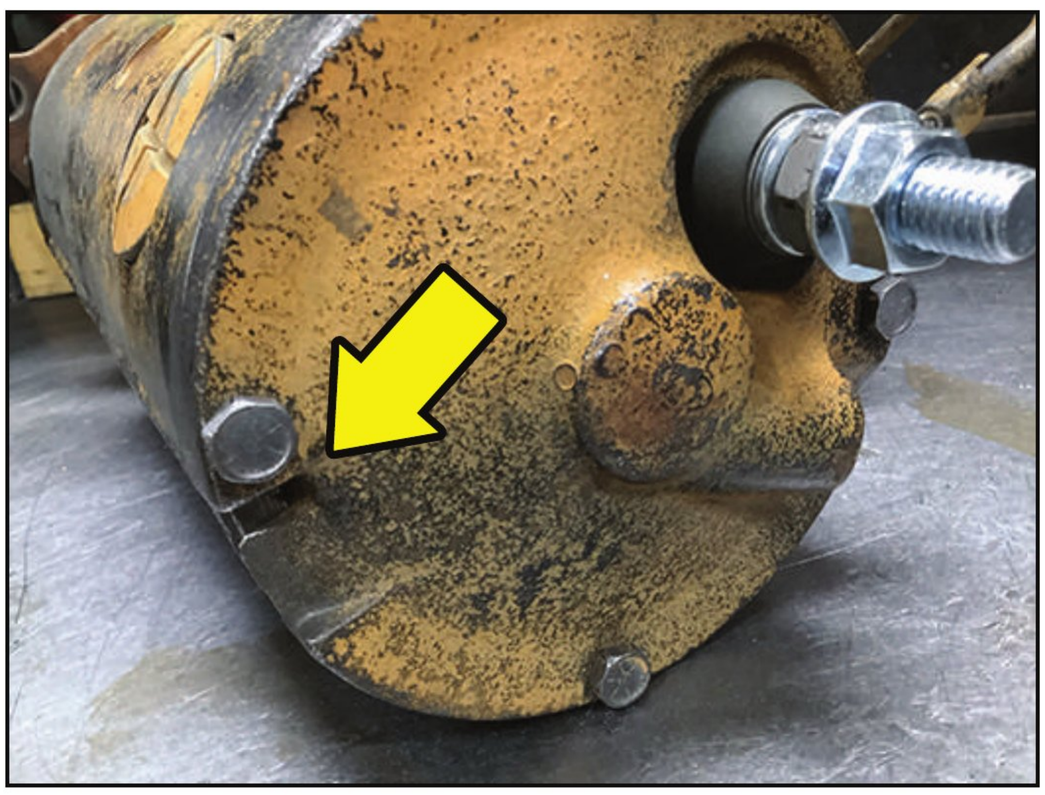


Figure 2

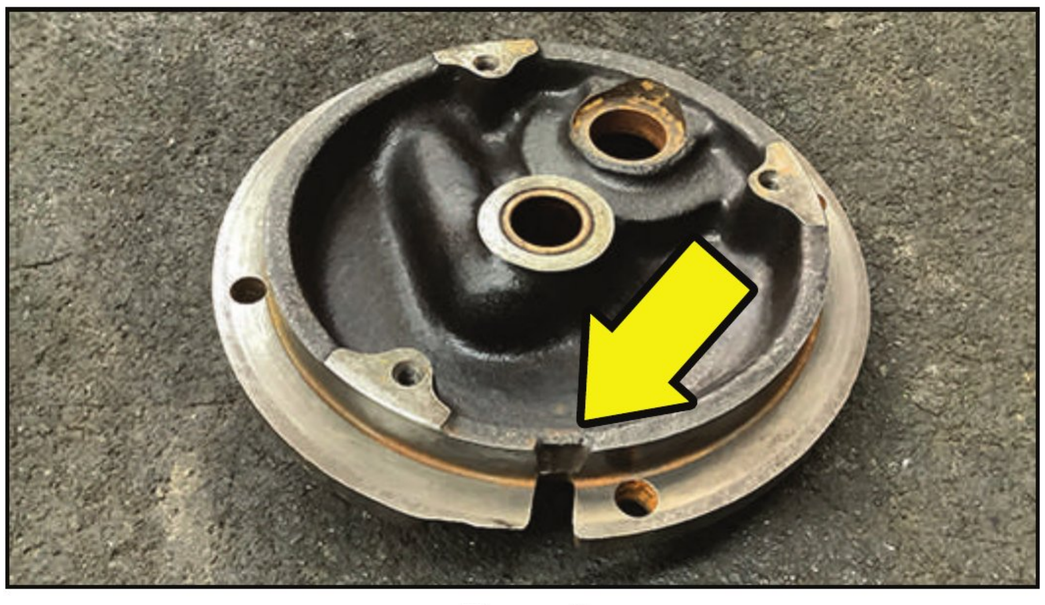


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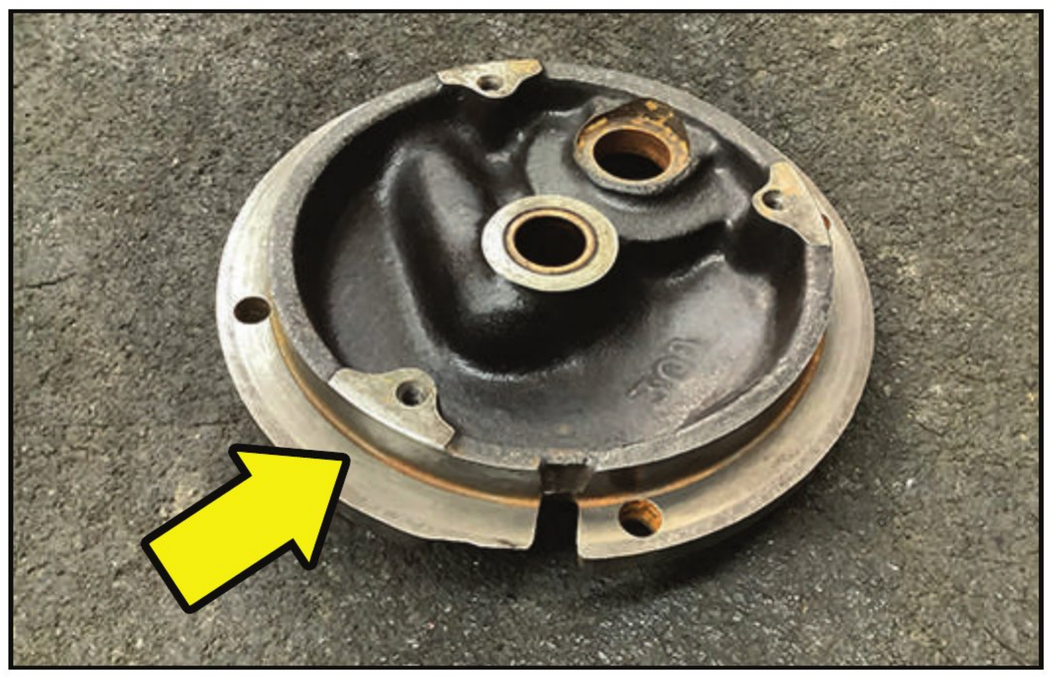


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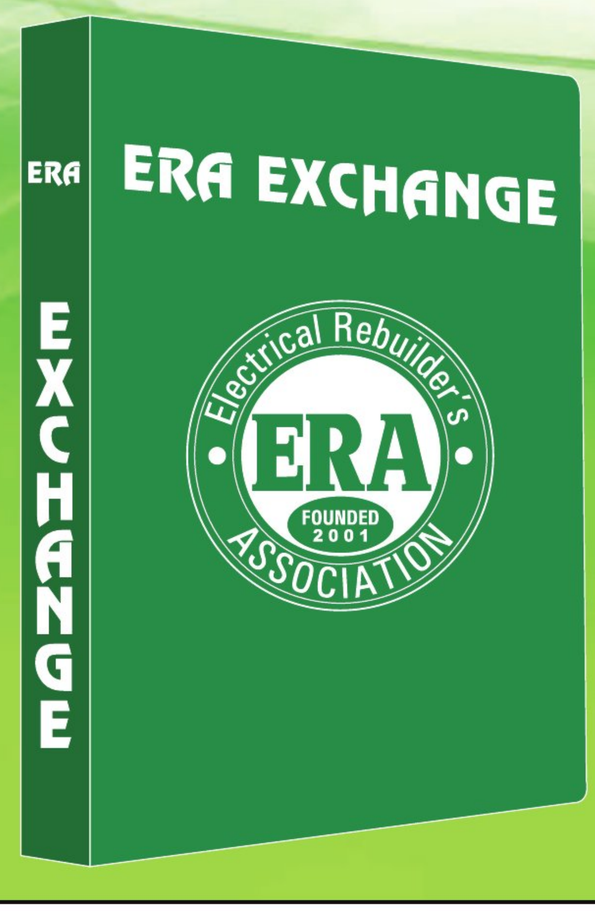
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3500 AND 3599 CORES. Contact Larry at Hagemeister Enterprises. 800-944-0494

Armatures for sale. $80 each plus shipping. Starter Repair 269-625-5400. GAR2116 Lester 4060-878, MAW2128 Lester 5060-1745, MZ2211 Lester 5060-1800, MAW2030 Lester 5060-1970, SM453 Lester 5050-2115

Rebuilt/new armature inventory reduction sale. 1917 $125.00, 2092 $75.00, 1985 $75.00, 2013 $125.00, 2014 $125.00 Select Parts, Inc Sioux City, IA 800-535-8035

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55 plus magneto cores for sale. Call Keith 931-314-5912 for list of part numbers. Make me an offer

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Whole remanufactured units for sale at a low price. I am downsizing my shop and liquidating some stock. Visit my website at startersbydon.com 541-902-2255

MISCELLANEOUS

HIRING: Looking for a change but want to stay in the industry? Join our growing Sales team! Please email info@regitar.com for more information.

EXPERIENCED REBUILDER: Kaestner Auto Electric in Waukesha, Wisc. looking for starter, alternator, and generator rebuilder. Emphasis on HD and Industrial. 3-5 years experience required. Send resume to steve.kaestner@yahoo.com.

Position Available! Growing national supplier and manufacturer to the rotating electrical industry is looking for a pricing manager. Full time position with the ability to work from home for the right candidate! Health benefits, 401K and fun and supportive culture. Requirements: Good industry knowledge of starters alternators generators and their markets. Ability to understand and apply pricing with several different strategies to individual market places. Willing to accept new ideas and products as we are diversifying. Ability to work with many people within an organization productively and respectfully. Effective skill with MS Office suite of programs, willing to learn if necessary (school). Salary DOE

I am looking for a VRT-10 regulator tester made by D&V. Email nathan.unger.asi@gmail.com ph 1-604-864-2198

SERVICES

R&R ALL STARTER DRIVES. North Atlantic Starter Drive, 741 Broadway, Pawtucket, RI 02861 800-822-2735 Email: popsy26@verizon.net

BUSINESS FOR SALE

Retiring! WELL ESTABLISHED, turn key starter and Alternator Business in IDAHO. Includes units, parts, equipment, and customer base. Shop and apartment available for lease. idahorebuilder@gmail.com

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Well established Starter Alternator and Generator, also Torpedo heater repair. In beautiful Western Michigan. Includes building with great location, all inventory and parts. Well established customer base. EXCELLENT Reputation. Will Train. E-Mail frgen17@gmail.com

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60 year Turn Key Auto/Truck Electric and Heating A/C repair shop in Hartford Connecticut suburb. Includes Units, component parts, equipment, and customer base. 3600 sq. ft., 6 Drive In Bays with Rebuilding & Storage area's. Willing to provide guidance and experience skills to motivated and willing to learn individual.E-Mail K2H24P@cox.net

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Business for sale. Over 50 year established starter - alternator rebuilder and battery distributor. In Beautiful Southampton Village Long Island. Includes 2000+ new and rebuilt units, batteries, battery related items, accessories, equipment, and component parts. Email jamcostarters@optimum.net

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Auto Electric Business going out of business. All equipment and 80-90 units. Heavy Duty (Ag Alts. & Starters) lots of parts. South Central North Dakota. $75,000. Call 218-770-3928

ADVERTISING: If you'd like to submit a classified ad, email Michele at office@electricalrebuilders.org. ERA members receive the first 25 words free. It's an ERA benefit!

Henry Ford once said,

"A MAN WHO STOPS ADVERTISING TO SAVE MONEY IS LIKE A MAN WHO STOPS A CLOCK TO SAVE TIME."

Advertising is an integral part of a successful business. It is not enough to have a good internal operation.





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