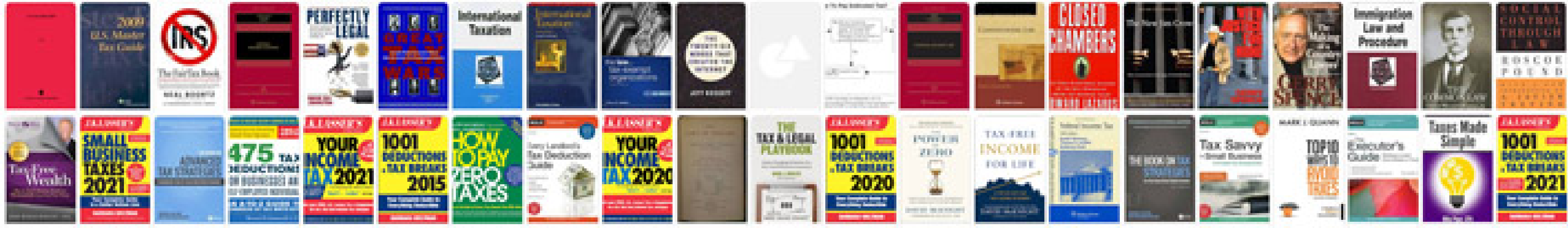

7.3 idi glow plug relay bypass

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A word of caution about ether or starting fluids: a hot glow plug can ignite starting fluid before you have a chance to crank over the engine and will cause internal damage. Jump to Diagnosis How the fuel injection system works These engines use what is called a hydraulic injection system. Fuel is delivered to the injection pump from the tank s by a mechanical lift pump. The injection pump contains a governor which contols the amount of fuel delivered to the injectors. The accelerator linkage basically changes the minimum governed engine speed RPM. If the engine speed decreases for a given throttle setting, the governor increases the amount of fuel to maintain the desired RPM. The injection pump also contains a transfer pump which increases the fuel pressure inside the hydraulic head to PSI. Excess fuel passes through a bleed into the governer housing where it is used to lubricate and cool the mechanical portion of the injection pump before returning to the fuel tank. The injection pump hydraulic head not only distributes the fuel to each injector, but also opens the injectors. It does this by pressurizing the fuel in the injector lines. From the transfer pump the fuel is sent to a plunger-type intensifier pump which increases the fuel pressure further and sends it through the shaft and distributor rotor to each individual injector line, depending on shaft position. When the fuel pressure in the injectors gets above psi new injectors typically open at psi , it overcomes the spring inside the injector and the valve pintel rises off its seat allowing the pressurized fuel to spray from the nozzel. As the fuel is injected into the cylinder, the fuel pressure drops and the internal spring re-seates the pintel. Air inside the fuel lines compresses and this is what causes so many performance and no-start problems. Hydraulic pressure can't build, so the injector won't open. Changing the fuel filter When ever I replace a fuel filter on a diesel, I try to do it with the engine already warmed up to aid in starting and to ensure that oil is distributed throughout the engine. If the Fuel filter header can be removed from the bracket, I do this because it reduces the amount of fuel spilled on the engine. Changine the filter is just like changing an oil filter--you lube the new gasket s with clean engine oil and hand-tighten only. Before installing the filter on the header, I refill it to make starting easier. Use clean diesel fuel, but if you don't have any on hand, you can save the fuel dumped from the old filter in a clean container and strain it before putting it back into the new filter. Since the engine has been warmed up, it will start, but it is going to stall. Sometimes you can keep it running long enough by "feathering" the accelerator pedal to purge the air from the system. But if it stalls, disable the glow plug system to keep from burning out the plugs by disconnecting the relay ignition wire, run a jumper from any positive battery source to the cold start solenoid and try to purge the air by cranking the engine. Only allow the engine to crank for 30 seconds or starter damage can occur. Sometimes it may be necessary to loosen some injector lines and hook up a battery charger if excessive air has gotten into the system. As you crank the engine, if it sounds like it is trying to start, tighten the injector lines. Unfortunatly, tests for the fuel system assumes the engine will start. Starter and Batteries The first thing you should check for on a no- or hard-start concern is the batteries. Clean the terminals and check each battery individually one negitive cable disconnected. They both should pass a 15 second load test of half the rated cold cranking amps voltage drop no lower than 9. Starter draw should be no higher than amps with both batteries connected and engine RMP should be no lower than RPM. If the cranking speed is too low, the engine won't produce enough compression to ignite the fuel. Glow plug circuit Check each of the glow plug resistance from its terminal to ground with an ohmmeter--the glow plugs should be less than 2 ohms when cold. Connect the alligator clip to the positive battery terminal and touch the probe to each unplugged glow plug terminal. The test lamp will light brightly if the glow plug is good. Even one open glow plug can shorten the controller on time sufficiently to affect starting. If the voltage is low or drops below 10 volts with the relay energized, check for loose connections at the glow plug relay, starter relay or engine harness connector, or bad fuse link s. Also check for voltage at each glow plug terminal with the relay energized. Glow plug circuit diagrams: Early Wiring Diagram Sample. A wiring diagram is a simple visual representation from the physical connections and physical layout of the electrical system or circuit. It shows how a electrical wires are interconnected and may also show where fixtures and components might be attached to the system. Use wiring diagrams to assist in building or manufacturing the circuit or digital camera. They are also a good choice for making repairs. DIY enthusiasts use wiring diagrams however they are also common home based building and auto repair. For example, a home builder should read the physical location of electrical outlets and lightweight fixtures utilizing a wiring diagram in order to avoid costly mistakes and building code violations. Repairing electrical wiring, over another household project is about safety. The rules might be complicated, for certain, and often confusing, even for master electricians, but you can find basic concepts and practices that apply to virtually every electrical wiring project, specially the kind that DIYers are allowed to tackle. The best way to stop electrical shock is usually to ALWAYS test wires and devices for power before taking care of them or near them. The circuit breaker label may not accurately describe what are the circuit breaker actually controls. All electrical wiring and devices come with an amperage, or amp, rating. This is the maximum amount of electrical current they can safely carry. Most standard household circuits are rated for 15 amps or 20 amps, while large-appliance circuits such as for electric dryers and ranges could possibly be rated for 30, 40, 50 amps, and up. When installing or replacing wiring or devices, each of the parts you use have to have the correct amperage rating for your circuit. For example, a amp circuit have to have gauge wiring, that is rated for 20 amps. When replacing a switch, permanent fixture, or outlet receptacle, make certain not to purchase a device which is rated for further amperage than the circuit carries. This is especially important when replacing receptacles. A receptacle rated for amps includes a unique prong shape in which one of many vertical slots features a T shape. This shape allows amp appliances, which may have a matching T-shaped prong, to become inserted. Installing a real receptacle over a amp circuit enables us to possibly overload the circuit should you plug this type of amp appliance involved with it. In fact, it is extremely normal for amp general-use circuits to be wired with amp receptacles. Electricity travels along conductors, including wires as well as the metal contacts of outlets and sockets. Tight connections between conductors create smooth transitions from one conductor to a different. But loose connections work like speed bumps, restricting the flow and creating friction as well as heat. Very loose connections can cause arcing, where electricity jumps over the air from one conductor to a different, creating tremendous heat. Prevent fire hazards start by making sure all wiring connections are tight and possess full contact from the conductors being joined. Outlet receptacles and switches will often be manufactured with push-fit wire connection slots on the back, along with the traditional screw-terminal connections about the sides with the device. These push-fit connections are notorious for loosening or failing, so professional electricians almost unanimously avoid them in favor of making very tight and secure screw terminal connections. Grounding and polarization are very important for that safety of modern electrical systems. Grounding provides a safe path for stray electrical current caused by a fault or other condition in a circuit. There are a variety of solutions to test for grounding and polarization. In most cases, what this means is an electrical box. Enclosures not only protect the connectionsâ€"and protect people from accidental exposure to those connectionsâ€"they in addition provide method for securing conductors like electrical cables and devices. If you need to make a wiring splice, use a junction box and secure the cables towards the box with cable clamps. Never leave a splice or other connection exposed or unsecured. Electric Motor Switch Radio Latest. Facebook Tweet Pin. Discussion in ' Trucks ' started by mitch , Dec 14, Log in or Sign up. Heavy Equipment Forums. Thank you for visiting HeavyEquipmentForums. Our objective is to provide industry professionals a place to gather to exchange questions, answers and ideas. We welcome you to register using the "Register" icon at the top of the page. We'd appreciate any help you can offer in spreading the word of our new site. The more members that join, the bigger resource for all to enjoy. Thank you! Thank you for joining Heavy Equipment Forums! If you are new to forums we communicate with "Threads", please search our threads to see if your topic may have already been answered and if not then click "Post New Thread" in the appropriate forum. This will allow all of our members to see your question and give you the best chance to be answered. After you've made a number of posts you will graduate to Full Member status where you'll see a few more privileges. Following these guidelines will help make this the best resource for heavy equipment on the net. Thanks for joining us and I hope you enjoy your stay!! Welcome to HeavyEquipmentForums. This is a computer-free truck. There is a glow plug controller at the rear of the intake. It has a relay mounted to it that is very similar to a Ford starter relay. One of the large terminals on this relay has battery voltage at all times. The other large terminal is connected to the glow plugs, and it has 6. When my glow plugs were working, I would see a big drop on my dash voltmeter for a few seconds when the key was first turned on, then it would come up to normal, then cycle every few seconds if you didn't start the truck. Now, there is no drop on my volt meter, which suggests that the large glow plug load is not being applied. This suggests to me that the problem is in this relay, since that is where the big voltage drop is. Thanks guys, Mitch. Those relays are famous for failing. Steve Frazier , Dec 14, Steve answered the direct question but I thought I would add some tidbits since you are likely to revisit this system sooner or later. It is an annoying system where every single connection must be in perfect shape or it fails to work. It works by sensing the voltage drop across the big flat wavy bar that is part of it, and as the plugs heat, the current decreases and the voltage drop decreases. So if you have a loose connection from the battery to the glow plug anywhere it will think that the plugs are already hot, and cut off power to them. And the truck won't start. It is at least better than the 6. Birken Vogt , Dec 15, Joined: Nov 22, Messages: 58 Location: north idaho. The glow plugs are well known for burning out too. Check them for open circuit burnt out with a circuit tester clipped onto the positive battery cable. If the bulb doesent light, the glowplug is toast. Joined: Nov 22, Messages: Location: idaho. I thought that the 7. I had to replace glow plugs occasionally and teseted them as mike in idaho suggested. I also had to replace the valve cover gaskets which had the wiring running through the middle of them. As Steve mentioned, the relays are prone to failure. Often times you can swap relays with another pretty quickly to determine whether or not that is the cause. These are all methods that one who is not a mechanic don't posess the equipment or knowledge to utilize more proffessional diagnostics can use to help find the problem. My 95 had a glow plug relay right on top of the engine which was easy to test with test light to see if it was receiving the signal to connect, and if it did indeed make the connection. Oxbow , Dec 15, The power stroke didn't come out until There was a 7. Sent from my iPhone. Austin G , Dec 15, Had to change the turbo first thing, later rewire the glowplug circuit, another new turbo after that. It's parked behind the shop right now with a holed piston. One thing the 7. New wire harness pieces from Ford are scary expensive, fortunately an affordable repair harness can be had at the NAPA store. Ah, thanks Austin G, I remember the "Powerstroke" distinction now. Oxbow , Dec 16, Mitch, you have the 7. It does sound like the GP controller is not working properly. Even if a couple of gp's are bad, it should cycle, just for a very short period of time. As stated, the GP's can be checked with a continuity tester or ohm meter. You can find all the information you could imagine over there. Good luck with yours and keep us posted on your progress. Gooseidi , Dec 18, I can't remember which ones they were but the guys on here have the info. I think it was the bosh ones that where the best. It s pretty common trick so you should be able to find info on one of the Powerstroke sites. Dozerboy , Dec 20, A '92 has 12v plugs already. It was the 6. For what it's worth I liked the 6v system better when it was working right. It heats up much faster. The 12v 7. Maybe the longer heat time makes it that way. Birken Vogt , Dec 23, All good info. My with an aftermarket banks turbo is having the same problem. I have somewhere to start. Reel hip , Dec 29, They are not too hard to figure out if you have a voltmeter and know how to use it. A clamp on ammeter is nice, too. The trouble with them is that they are too blasted sensitive to every little thing going wrong that will take down the whole system until repaired. My old 6. Under normal conditions the 3 cylinders firing would pick up the other ones so fast you couldn't even tell. If you have a 7. Birken Vogt , Dec 30, Any luck Mitch? Gooseidi , Jan 11, Joined: Jan 19, Messages: 4 Location: ca. I have not put it on yet but I'm going to get one as soon as I get my truck back. I'm having that problem now and surfing the web and came across his page I know you guy's are saying how can I vouch for it, great feed back on it and the way he explains the set up. That guy's kit is for a full manual setup, which I do not like so much. I want it to work automatically and more or less the same as it did stock. As for the alternative relay, the guys on another board liked a big honkin' White-Rodgers relay for the Powerstrokes, which is what I got when mine went bad, and it has worked great ever since, so there is another alternative out there. I see no reason it coulnd't work on a 7. So the ebay guy might be better because his looks the same shape as a Ford relay. Birken Vogt , Jan 19, You must log in or sign up to reply here. Show Ignored Content. Your name or email address: Do you already have an account? No, create an account now. Yes, my password is: Forgot your password? After checking the glow plugs fine , I reverted to shorting out glow plug relay post to post for ten seconds or so, and the truck started instantly. It has full voltage across the posts when cycling but must not have sufficient current, and the cycling would make it seem that it is sensing some funky resistance. I have had the truck for two years and it always cycled 8 times or so before starting hard, lately the wait to start light is on, but no cycling sounds, and impossible to start. I remember people saying they converted to a manual push button, more like IH diesels I guess that have a push button or on the key. For people that converted to push button, I assume they used a separate push button to operate the relay. How long do you activate the button, and has there been a shortened GP life from over heating them at all? This seems like the way to go, I am thinking seconds or by experience when engine is cold would be fine. Truck is F with , miles, all original in regard to fuel system. Runs fine and with good power. Was about 20F when it started with the shorted relay. TIA for advice. You can search on the diesel pickup web sites and come up with a million different ideas. Here is my experience. I have an 84 6. I went thru all the glow plug troubles years ago, changing controllers, changing glow plugs all the time, trying to do it with a manual switch just doesn't work, if you count wrong and hold the button 9 seconds instead of 8 seconds you burn up glow plugs. While all this was going on I bought an 84 Oldsmobile Cutlass Ciera with the 4. How'd they do that?? Did some research and found out they used a "constant duty thermal limiting glow plug" that heats fast and turns itself down to maintain heat and prevent burn out. Modern Powestrokes are similar I discovered they were the exact same thread and style as the 6. They were an AC 12G. I bought some and put them in my 6. It's about 15 degrees out now and if I go out and hold down the button for about 20 seconds it will start. I've done about 5 or 6 others and they work out really good. The 12G plugs are getting really hard to find though. I have a set of Autolite that are supposedly the same cross reference to put in a neighbors pickup when the weather warms up, hoping they work out the same. You could weld the tips to the head and create a very bad mess; you dont want to remove a head to extract a glow plug. Using modern electronics it should be easy to design a current limiting GP controller so the GPs would have an indefinite life. When I test things with a jumper, I always use an amperage limiting wire guage jumper to prevent a true short so not too worried about overheating the glow plugs. It seems that there are as many ideas as posters on the internet, equal for and against so I wanted to see what people have actually experienced. Farmall57 that sounds promising, will look into that concept. Don't ever put a push button switch in either 6. I worked for Ford for 18 yrs and did all the Diesel work. The 89 7. I usually use a 6 guage battery cable from battery to glow plug relay. Use test light to check glow plugs. Need to have all 8 test good for system to work properly. Also run an extra 12 guage wire for ground from glow plug control, ground at rear of engine to left battery post ground. I usually update the 6. It should then work properly. The one I had started without using glow plugs if the outside temp was above 10 degrees. If below that I just would plug in the block heater. My Ford mechanic told me that the guys that waited for the light to go out , religiously, were the ones that always had glow plug problems. On my 85 6. I installed a push button and it never caused me any problems for over 10 years and my buddy that bought it after me, ran it like that for another 10 years until the whole truck went to the bone yard. Glow plugs would go bad but no more than when they worked correctly. And on my Current 85 6. The truck starts every morning with one shot of ether. When it gets below freezing it takes 2. Uses a can of ether a month. Thanks for the advice all, kind of like the other diesel truck forums, some swear by manual control and some against it. This truck will definitely not start in any weather without glowplugs, and it is too old to put money into the fuel system, so improving glowplugs is the only way to go. It reminds me of all the old IH's with glowplugs I have run, tractor can be worn out five times, but if the glowplugs are working well it will still start even in crap weather. I never really had a problem out of my 94 IDI, but my buddy ha a 91 and their controller had gone out about 2 years after they bought it, so they took the relay from a 6. That truck would start just about every time withen one or two revs. It was like that from 93 up until he traded it for a duramax in 04, so for 10 or so years he ran it like that and never had to put in glow plugs or anything. IIRC he would hold the button about seconds, and she would fire. I would still be waiting on mine to run through the cycles. I was going to do that to mine, but the truck ended up in salvage before I could. The system design itself was workable, if the wiring just would have been of

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better quality there wouldn't have been near the problems. As long as the monkey pushing the button was properly trained and did his or her job correctly there were very few problems after the conversion. You checked the glow plugs and they are fine and shorted accross the relay and it worked,did you try replacing the controller. I replaced a few of those on my 85 6. Start new topic. Recommended Posts. IH Steve 3 Posted February 13, Posted February 13, Link to post Share on other sites. You have to be careful just applying power to a glow plug without considering duty cycle. Posted February 15, IH Steve 3 Posted February 15, Posted February 16, I think youll be fine by wireing up a push button on it. Doc Egor 70 Posted February 16, Crappy wiring and rough service were a bad combination. Converted probably of those trucks to push button control over the years. Posted February 17, Archived This topic is now archived and is closed to further replies. Go to topic listing. Sign In Sign Up.