

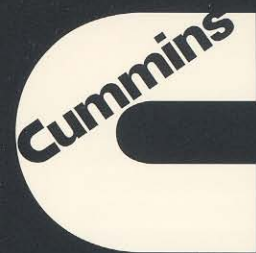


PARTS PRO CLASSIC

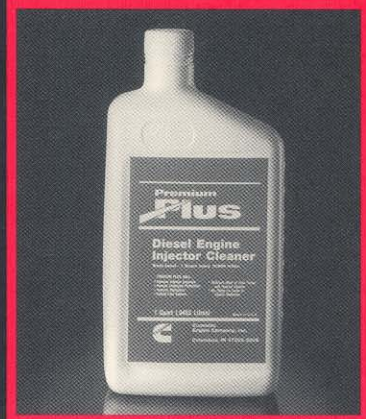
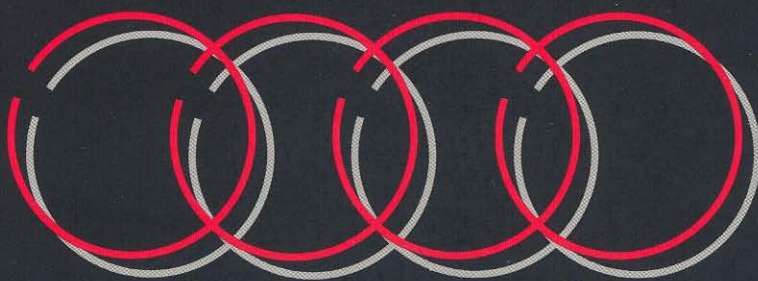
CLASSIC EDITION #21

Parts Pro Classic is provided as a historical reference. Special offers, prizes and awards no longer apply to this edition. Current Parts Pro issues along with all Parts Pro Classics may be found at [click\) qsol.cummins.com](http://qsol.cummins.com).

Cummins



**Parts
Professional 21**



INVEST IN THE BEST

Parts Professional 21 Quiz / Survey

Current Address Check here if this is a new address.

Name _____
 Street _____
 City _____
 State _____ Zip _____
 Distributor Code _____ Dealer Code _____

Old Address (If Applicable)

Name _____
 Street _____
 City _____
 State _____ Zip _____
 Distributor Code _____ Dealer Code _____

Quiz

- | | |
|------------|-------------|
| 1. A B C D | 9. A B C D |
| 2. A B C D | 10. A B C D |
| 3. A B | 11. A B C D |
| 4. A B C D | 12. A B |
| 5. A B C D | 13. A B |
| 6. A B | 14. A B C D |
| 7. A B C D | 15. A B C D |
| 8. A B | |

1. How can we improve Parts Professional?

2. What topics would you like us to feature in future editions of the Parts Professional?

3. Do you have any technical or sales-oriented TIPS?
 (If you have any now, please include them!)

4. Do you have a Success Story?

Parts Professional 21 Reply Card

Check here if this is a new address

Current Address

Old Address (if applicable)

Name _____	Name _____
Street _____	Street _____
City _____ State _____ Zip _____	City _____ State _____ Zip _____
Distributor Code _____ (if applicable)	Dealer Code _____ (if applicable)

Comments or Suggestions: _____

Dealer Name _____

Hello! Welcome to Parts Professional 21! In this issue, we will discuss the fuel system. Included in this discussion is the Cummins/Cummins ReCon® Fuel Systems, Premium Plus Injector Cleaner and Service Products Equipment to work on the fuel system.

The index for Parts Professional 1 - 19 is included in the mailing. This index was accidentally omitted from the last mailing.

Once you have read this issue, please take the quiz that is located in the back of the book. All you have to do is tear out the answer card in the front of the booklet and circle the correct answers. This Parts Professional prize is an opportunity for you to win an additional prize from one of the last 4 prizes. Several people mentioned that they would like to have another Parts Professional bag, etc., so here is your chance.

On question 14, circle your top choice of a prize. On question 15, circle your second choice of a prize. If you score 100%, you will win the prize. We will try to fulfill everyone's top choice; however, we have a limited number of each prize. If you want a specific prize, you need to return the quiz immediately.

I also would like for you to take the time and fill out the 4 survey questions on the quiz card. I asked you these same questions in Parts Professional 17, and I received some great responses. So I can continuously improve the Parts Professional, I need your responses.

If you have a TIP from the Professional or a Success Story, you can use the reply card to send me the information. Please remember that TIPS and the Success Story must be compatible with Cummins standard practices and must relate to the sale of New or ReCon® Genuine Cummins Parts. If you are the top winner in the TIPS from the Professional or the Success Story, you will receive a Cummins Parts Professional jacket.

If you need additional booklets, please contact your local distributor. All past issues are available through your local distributor, even though the incentives are no longer available. The Parts Professional binder with issues 1-19 is bulletin number 3624186. The Parts Professional binder with issues 20-current booklet is bulletin 3698522.

I look forward to hearing from you!



Kathy Gastineau
Advertising & Promotions Specialist

Editor's Note: Special thanks to Les Freeman, Richard Beach, Barry Kastner, and Lloyd Glick for their contributions to Parts Professional 21.

Success Story

The Parts Professional 21 Success Story comes from Florida. You may see this success story appearing in national publications. There is a press release that was sent to all major publications regarding Miconex's success and the ReCon engine given away at their annual customer event.

This success story is based on the total team concept between Cummins, Cummins ReCon, the distributor and the dealer. Miconex Corp. is located in southern Florida. The company was founded in 1981 and today it employs 10 people. Miconex is recognized as an authorized Cummins and Cummins ReCon dealer.

Miguel Morell, Miconex's owner, has a philosophy that has proven to be successful. His philosophy is to take a top-quality product and provide relentless, reliable service at a cost that is affordable to the customers.

How is he providing excellent service? Morell uses a radio dispatch system to keep three delivery vehicles moving locally. As a rule, Morell says that orders placed by 3 p.m. will be picked and shipped off to the destination by 5:30 that afternoon, with next-day service completed by 10:30 a.m.

Miconex has a wide and varied customer base. They get a lot of orders from the construction business such as the trucks hauling concrete and dirt. Another group of customers is the tractor trailers hauling merchandise to and from the Port of Miami. Miconex will also deliver directly to the small owner-operators (with 1-3 trucks), and they supply genuine parts to repair shops in the area. Also included in their customer base are local fleets and OEM truck dealers.

Morell says his philosophy for service is simple. "It's not enough to provide parts. We don't have a shop to complete the service. As a result, we have to be better . . . on price . . . and on the quality of the parts we stock. You have to remember that the people who look to us are either doing their own work, and/or their livelihood is tied completely to the trucks and equipment they're using. They have to be up and running fast."

Currently, Miconex operates two facilities, a 1,500 sq. foot office/inventory complex and a 2,000 sq. ft. facility that's dedicated strictly as a warehouse.

A key ingredient in Miconex's success has been its relationship with Cummins Engine Co. Inc.. Miconex has a close relationship with their distributor, Cummins Southeastern Power. In order for Miconex to fulfill its prompt delivery, Miconex looks to Cummins Southeastern Power for quick delivery. John Matey of Cummins Southeastern Power says that their distributor can fill ninety percent of Miconex's orders within 2-3 hours. The rest they can make with next-day service from their Parts Distribution Center in Tampa.

What is the pay-off for providing excellent customer service and for having a close relationship between distributor and dealer? Miconex, routinely, keeps a "six-figure" inventory of "genuine" products from Cummins and "remanufactured" products from Cummins ReCon. Sales for the Hialeah-based company have skyrocketed, up some 400 percent from 1992.

I want to thank everyone involved in sending me this success story. As this story illustrates, when the whole channel works together as a team everyone wins.

TIPS

from the Professionals

The first Tip comes from Jeffrey Hayes of Burlington, Vermont. His tip is a reminder that not all of our customers are truck drivers. "Keep in mind that a lot of 'B' and 'C' engine owners are not necessarily 'truck' people. They may not have the same knowledge level about the engines. You need to treat them and their problems according to the knowledge level of the engines that they possess.

The winning TIP was sent to us by Mary Parsons of Diesel & Equipment Specialists, Inc. in Bridgeville, Delaware. Her TIP is when a customer requests a ST-50, T-46, or T-46B Turbo, check the engine CPL to see if the customer can upgrade to a HT3B Turbo. The additional cost (if any) after the upgrade charge and the installation kit will be quickly reimbursed with the fuel savings the customer will receive. The customer will also notice the improved responsiveness of the turbo and the overall performance of the engine. The HT3B Turbo and the pulse exhaust manifold are a great combination. **(Editor's note:** Before upgrading check the CPL and Service Parts Topic 93T 10-2) Additional sales can also be made with intake gasket, intake hose and clamps, drain hoses, exhaust clamp for turbo exhaust housing to pipe, and a new air cleaner.

Thanks Mary and Jeffrey, for your contributions to the TIPS from the Professional. For your TIPS, each of you will receive a Cummins Parts Professional cap and Parts Professional badges. Since Mary has the top TIP, she will receive the Cummins Parts Professional jacket.

If you want a chance to win the Parts Professional jacket, all you have to do is submit a TIP from the Professional according to the guidelines listed in the letter from the editor.

ReCon Fuel System

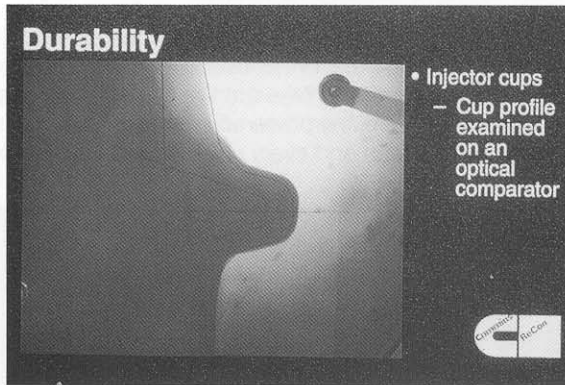
In order to be successful, Cummins must satisfy the customers' needs. Cummins ReCon works hard on satisfying these needs through the processes involved with remanufacturing the fuel system. Cummins ReCon supports every Cummins engine family from the B series through the 2,000 hp KVs. The support is provided both to the new electronic engines and to the engines that were built 50 years ago.

Not all customers understand the critical role that injectors have in the efficiency and durability of the engine. Customers also do not understand the differences between ReCon injectors and the competitors' products. You, as Parts Professional, should convey the importance of the genuine product because of the increased reliability, increased durability, improved performance, and the excellent support that only the Genuine Channel can provide.

What are the differences in the fuel system between Cummins ReCon and the competitors?

When it comes to durability of the PT/STC injector and the engine, there are three critical characteristics: the injector cup, top stop settings, and the barrel and plunger clearance specifications. Also, critical to the durability of the injector is the life that the cup has left in it.

Cummins ReCon realizes the importance of the life of the cup in relation to the durability of the injector. The PX injectors feature 100% new cups and the standard XX injectors feature 100% requalified cups.



What is a requalified cup? Cummins ReCon uses optical comparators to examine the profile of the cup. In many cases, the metal can be eroded in critical areas making it weak in that area. If a person examines the cup with the naked eye, he would not be able to make the determination. The picture above shows a sample injector cup. This particular cup is thin in an area where the metal is thinnest by design. Re-using this tip could result in a tip cracking or perhaps a tip blowout, with major damage to the engine.

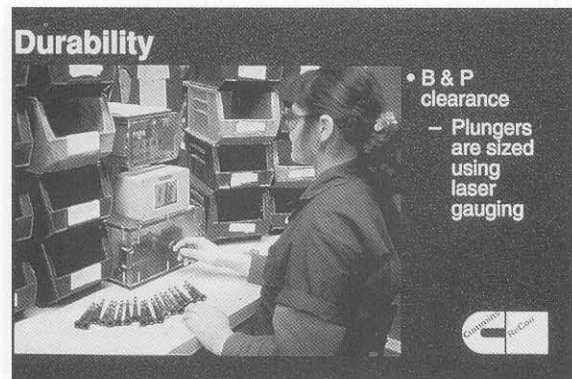
Every cup that is re-qualified and used on a standard XX injector is hydraulically flow tested. The same test that is used on new injector cups when they are originally manufactured. This test is extremely important because the flow of the cup affects emissions, camshaft loading, fuel economy and power. Cummins ReCon XX injectors outperformed the competition in the injector hydraulic flow comparison.

Injector calibration is critical to the reliability and performance of the injector and the engine. Proper calibration is critical to fuel economy; calibration is critical to the amount of power that the engine delivers (and the driver's satisfaction); and calibration is also critical to the durability of the engine.

Another area that sets Cummins ReCon apart from the competition is the cup spray hole. The condition of the cup spray holes influences the way that the fuel is atomized at the time of injection. The way that the fuel is atomized will affect emissions. Fuel sprayed into a fine mist will burn more efficiently and give the customer better fuel economy and less smoke. Fuel that pours into the cylinder in a stream will not burn efficiently. The result is heavy smoke and poor fuel economy. Every cup that ReCon re-uses on a standard XX injector has been inspected with a video microscope to determine the condition of the spray holes.

A third critical area of the injector that impacts the durability of the injector and the engine is the precise amount of clearance between the barrel and the plunger. Every ReCon injector (standard XX and premium PX) is remanufactured to the same barrel and plunger clearance specifications as new.

How are the barrel and plunger clearance specifications remanufactured to be the same as new? The plunger's outer diameter is rechromed, reground, and sized using laser gauging. Each barrel is honed to insure consistent dimensions throughout its inner diameter. Measurements are made in two places to insure that the taper (or measure of variance) is within specification.



Using electronic air gauging, the barrels and the plungers are matched together. Each barrel and plunger is match-fit to the same specifications as new. Any other measurements done in the field, such as "units of leakage" on the Service tool 990 are crude approximations of the clearance between the barrel and plunger.

Cummins ReCon XX injectors also outperformed the competition in the barrel and plunger match fit comparison. ReCon match-fits each and every barrel and plunger to within millionths of an inch.

Another way ReCon delivers a durable product to their customers is by shipping injectors that are top stop set to the proper specifications. If the injectors are not top stop set properly, the load may be excessive on the camshaft. A camshaft will fail if it is subjected to excessive loads.

Customers also demand a reliable product. This means that the injectors are calibrated properly, built with the proper parts, and built to the right specifications.

A reliability difference between Cummins ReCon and the competition is how an injector is calibrated. Some competitors use a standard injector test stand. The operator has to remember which injector he is calibrating and the specifications for that injector. When a person builds over 230 injectors per shift, it is hard to avoid making any errors.



How is Cummins ReCon's calibration equipment different? Cummins ReCon replaced the dial indicators with "blue boxes." The blue box has an easy to read digital monitor and indicator lights to tell the operator when the injector is within specification. Before the operator begins to calibrate a set of injectors, bar coding tells the computer which part number is to be built. The computer knows the specifications for every injector that Cummins ReCon builds. The computer also monitors other critical conditions of the test stand. The colored lights on the blue box let the operators know whether to continue broaching the orifice plug or if broaching has gone too far.



If an operator attempted to remove an injector from the test stand while it is not within specification, the computer will record the attempt and sound an audible alarm.

Another way that Cummins ReCon improves the reliability of the injector is through the plunger cup cone angle. Improper plunger or cup cone angle will lead to white smoke problems for the customers, and the stress on the cup will be increased. On STC injectors, none of the competitors control this specification as tightly as Cummins ReCon.

The difference is that the customer receives the most reliable injector from ReCon which will increase the performance in the engine. Cummins ReCon routinely tests the competitors' products and Cummins ReCon has yet to find a single 6-pack of injectors that meet Cummins specifications.

Cummins ReCon stays ahead of the competition with design improvements made to injectors. There have been over 52 design changes to the STC injector since it was originally introduced.

An example of a ReCon STC feature is that all new cups are used. ReCon doesn't requalify used STC cups because the cup flow specification is 40% tighter than the specifications for injectors in other engines.

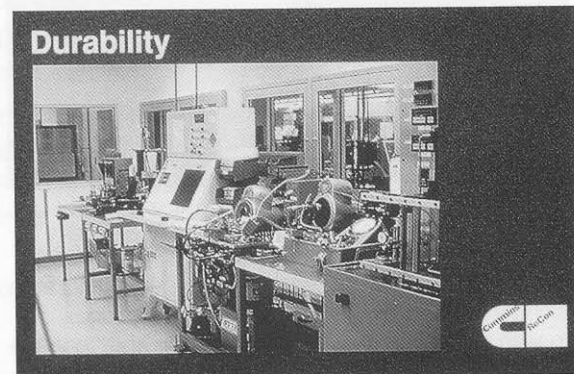
A second example of a STC feature is the press-fit style plunger on KSTC. This injector is the STC injector for the K series engines. The KSTC injectors use a press fit between the plunger and the coupling due to higher loads on the injector plunger and coupling.

Another example of a STC feature is that the fresh rechromed plunger is around to Cummins print specifications to limit plunger/barrel wear. The STC style injectors experience more wear than other PT styles due to design. New chrome guarantees the maximum life possible on the match clearance.

Plungers are 100 percent torque tested for crimp joint integrity is the fourth example of a STC feature. The fifth example is that all tappets are converted to the latest design for improved reliability. A sixth example of a STC feature is that the calibration and top-stop set operations are mistake proofed.

Cummins ReCon has invested in meeting the customer needs on the new electronic fuel injector technology - CELECT. ReCon has invested heavily in CELECT remanufacturing techniques, equipment, and people. ReCon starts the reman process by cleaning the core in a state-of-the-art ultra-sonic cleaner.

Each piece of equipment used in the process is automated and computerized whenever and wherever possible in an attempt to take out the human error. Pop testing is now an electric powered process to ensure repeatability on each and every unit with every operator.



Cummins ReCon has incorporated the colored lights' process developed on older equipment. A major difference is that the lights are connected to the computer dedicated to each piece of equipment.

The higher operating pressures of today's injector requires new sealing surface requirements. A special "one of a kind" surface grinder has been designed and installed to ensure against leaks developing in these critical seal areas. After the seal surface grinding is completed, each piece is measured and qualified using a multi-computerized bank of devices and equipment that can measure surfaces more accurately than using light bands.

New modern technology equipment means higher skill level in the work force and Cummins ReCon has committed to maintaining the skill level necessary to properly operate this equipment.

Cummins ReCon has made the commitment to "clean room" environments, computerized testing equipment, and a highly trained and skilled work force. ReCon has further invested in the future with engine test rigs and test cells that are used for durability testing. All of their efforts in being a leader in the industry have not gone unnoticed. The injector plant is Q1 certified.

As an additional benefit to the customer, Cummins ReCon offers excellent support in the event of a failure so that the customer can get back on the road quickly. Excellent support is the best warranty offered nationwide.

Due to the extreme confidence ReCon has in their products, they have improved their warranties. The standard XX injector warranty has increased to 1 year, unlimited miles. The premium PX injector increased to 2 years, 125,000 miles. This warranty is the same as the new warranty. The B & C injector warranty has increased to 1 year, unlimited miles. All ReCon warranties start from the date of customer installation, not from date of manufacture or date of sale.

New Parts Fuel Systems

Cummins continues to look at ways to differentiate its Genuine PT Fuel Systems New Parts with those of the various suppliers of Non-Genuine service parts through competitive testing and analysis.

Recent testing and analysis of various Non-Genuine replacement Cummins PT Injector service parts revealed some very noteworthy differences between the Non-Genuine parts and the Cummins Genuine New parts.

To conduct the test, the Cummins New Parts business purchased Genuine New replacement service parts and new, Non-Genuine replacement service parts from the open marketplace. The parts purchased were PT Injectors, Injector Cups and Injector Barrels & Plungers.

Five Non-Genuine suppliers' parts were used in the market sample. These market samples were randomly purchased from various geographical areas of the US, through fuel systems service outlets that have purchase access to each of these Non-Genuine suppliers.

The following data reflects some of the results of the metallurgical and chemical analysis that was conducted on the Non-Genuine Fuel System parts.

PT Injector Cups

The Non-Genuine samples 1, 2, and 3 were compared to Genuine Cummins New Parts. The results show that the Non-Genuine product looks similar to the Cummins product. It has a black oxide finish, use of ECM machined spray holes, and the same base mate-

rial. The difference becomes apparent when tested. Each of the Non-Genuine parts tested were substantially softer than the Genuine Cummins requirement.

What is the impact of the substantially softer Non-Genuine injector cup? The softer material used in the Non-Genuine samples tested would negatively affect fatigue strength and wear characteristics.

The Non-Genuine Samples from Supplier 4 and 5 were also compared to Genuine Cummins. These Non-Genuine samples were a stainless steel base material with machine drilled spray holes. Each of the Non-Genuine parts tested were substantially softer than the Genuine Cummins requirement/specification.

The result is that the softer stainless steel material used in the Non-Genuine parts tested would negatively affect fatigue strength and wear characteristics. The machine drilled spray holes would negatively affect fuel spray pattern, atomization, engine smoke, performance, and fuel economy.

By using the Cummins Genuine PT Injector Cups, a person will have a more durable and reliable engine than if the Non-Genuine products are used.

PT Injector Plungers

The first difference between genuine and non-genuine was found when comparing the Non-Genuine Samples 1, 2, 3, and 4 with the Genuine Cummins New Parts.

The base material of the Non-Genuine parts tested were made from SAE 52100 steel which is substantially softer than the Genuine Cummins special tool steel requirement/specification. The material difference can easily be seen in the presence of the carbon particles in the Genuine parts structure, where the Non-Genuine parts do not have this carbon structure. The same four samples did not have Chromium plating which is the Genuine Cummins material requirement/specification.

The differences between Non-Genuine parts and Genuine Parts can be seen in these results. The softer SAE 52100 steel of Non-Genuine parts have a higher thermal expansion rate, which can contribute to low temperature scuffing and sticking during start up. Plungers without Chromium plating are more susceptible to corrosion and greater wear than plungers that have the appropriate Chromium plating.

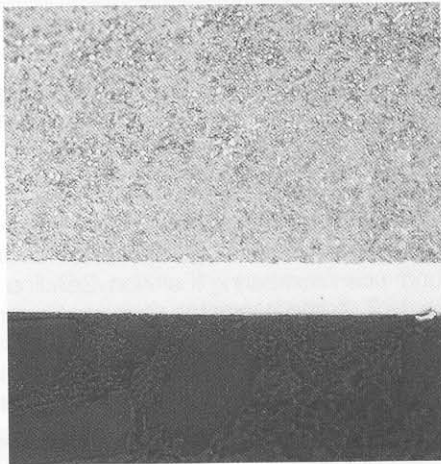
The Non-Genuine Sample 5 also was compared to Genuine Cummins. The base material of the Non-Genuine part tested was made from SAE 52100 steel which is substantially softer than the Genuine Cummins New Parts special tool steel requirement/specification. The sample did have Chromium plating but not to the Genuine Cummins requirement/specification. The Non-Genuine sample tested had a Chromium plate thickness that measured 33% less than the acceptable Genuine Cummins New Parts requirement/specification.

The result is that the Chromium plating thickness of the Non-Genuine sample tested would be subject to premature wear and possible early injector failure.

What do all of these competitive tests tell the parts professional? Of the competitive Non-Genuine heavy duty fuel systems parts samples tested, none were found to meet the Genuine Cummins New Parts requirements or specifications.

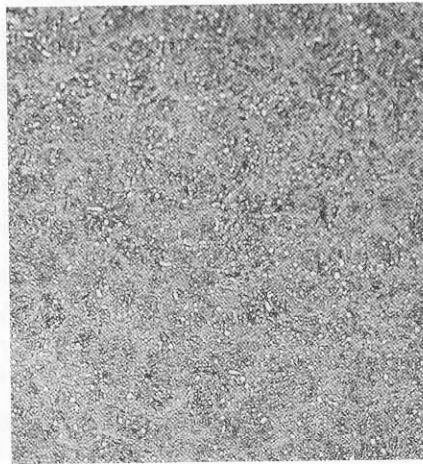
Premature wear, early injector failure, low temperature scuffing, sticking, excessive smoke, substantially softer, and decreased fuel economy are all terms that are directly associated with the Non-Genuine samples tested. These are the differences found in products. Parts professionals should make their customers aware of what differentiates the Genuine PT Fuel Systems New Parts from the suppliers of Non-Genuine parts. The total cost to the customer to operate Cummins powered equipment can be much greater than the price of a set of Non-Genuine injectors!

Chrome Plate on Non-Genuine PT Injector Plunger



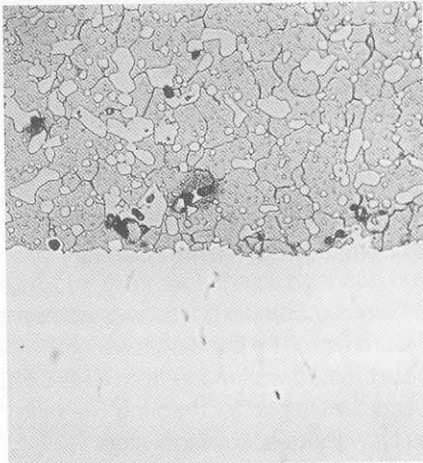
Non-Genuine Sample
500x magnification

SAE52100 Steel No Chrome of Non-Genuine PT Injector Plunger



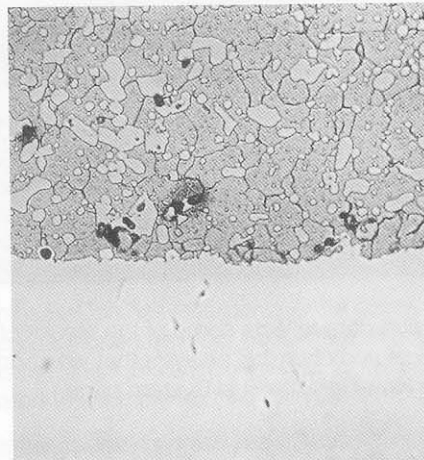
Non-Genuine Sample
500x magnification

Chrome Plate on Genuine Cummins PT Injector Plunger



Genuine Sample
500x magnification

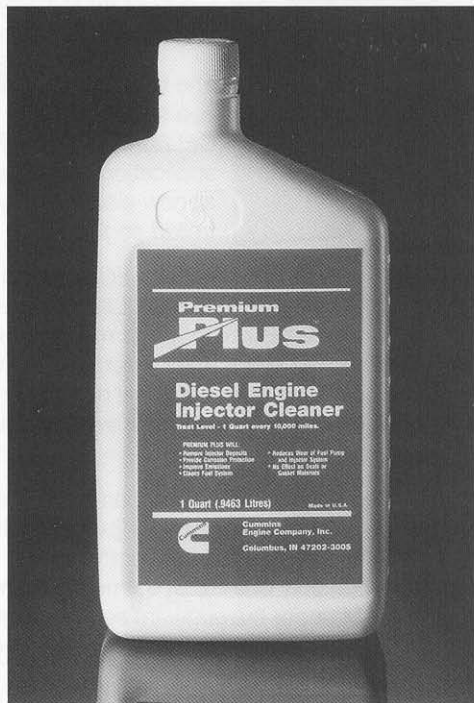
High Carbon Tool Steel Chrome Plate on Genuine Cummins PT Injector Plunger



Genuine Sample
500x magnification

Injector Cleaner

Injector deposits caused by poor-quality fuel can hurt the performance of the engine and can shorten the engine's life. Cummins has developed the Premium Plus Injector Cleaner that will control the deposit formation and neutralize the acidic combustion gases.



Premium Plus has the same properties that diesel fuel has. It has flash point, specific gravity, cetane number, initial and final boiling point. The injector cleaner has the same energy content as diesel fuel and will not affect the engine performance.

Premium Plus Injector Cleaner will also improve emissions, clean the fuel system, reduce the wear of the fuel pump and injector system, and improve diesel fuel lubricity. The injector cleaner will have no effect on seals and gasket materials nor will it have an effect on the paint finish.

How does this injector cleaner work? Resin binders hold the carbon deposits together and to the injector parts. Premium Plus works by attacking these binders, cutting the deposits into molecular particles that are soluble in the cleaner/diesel fuel mixture. These particles are injected into the cylinder along with the fuel. The particles and fuel burn and leave through the exhaust as normal combustion by-products. No additional deposits are left in the engine.

To control deposit formation, it is recommended that Premium Plus Injector Cleaner be added to the fuel every 10,000 miles. To minimize foaming, add the Premium Plus after filling fuel. Check with the Premium Plus container to find the recommended concentration and amounts to be used.

Premium Plus is designed to remove carbon buildup from injectors quickly and easily. Treatment is necessary only when carbon buildup is suspected to be causing performance problems. Continuous use is not necessary and not recommended.

If Premium Plus has not been used as a regular additive, and performance problems suggest a carbon buildup on the injectors, a Premium Plus Flush Kit is recommended. The low-cost Flush Kit is simple to use and produces fast results. The flush kit contains a mixture of Premium Plus and diesel fuel which is hooked up to the engine in place of the fuel lines. The mixture is generally consumed in about 45 minutes and the injectors will be clean.

Premium Plus Injector Cleaner can be ordered by calling 1-800-433-9341. The Part numbers are 3885736 (Quart), 3885735 (Gallon), and 3885737 (Flush Kit).

Service Products

Cummins Service Products offers a complete line of genuine tools to support Cummins Fuel Systems. These are the only products certified:

- to bring fuel systems components back to specification
- to read proprietary broadcasts from ECMS
- to make programming adjustments

The service products include INSITE, ECHEK, COM-PULINK, and associated accessories. These tools support diagnostics and adjustments and are the first step in evaluating the condition of electronic engines.

In addition, these tools retrieve valuable information stored on the engine controllers such as Trip Information and Maintenance Monitor readings which help fleet managers and owner operators manage their operations for success.

Customers who already use the Compulink and Echeck tools will want to know that there are new software cartridges recently released to support their '94 CELECT or CENTRY engines.



One of the new software cartridges is the Echeck HD Automotive 3.0 cartridge. Diagnostics and adjustable parameter functions are now in one new cartridge. This cartridge supports recently released '94 Celect engines features including Maintenance Monitor and Trip Information System, as well as '91 Celect, PT Pacer and Pace. New Data Capture and File Manager features provide extra capabilities to help technicians troubleshoot and document engine conditions. The cartridge kit comes with new Celect Troubleshooting and Repair Manual for N14, M11 and L10, laminated Celect wire harness repair diagram, PT Pacer and Pace pocket fault code manuals, and other valuable literature.

The ECHEK Centry 1.0 Cartridge supports Centry engines in industrial and agricultural applications. The cartridge offers full diagnostic and adjustable parameter features including Fuel Control Actuator test. The cartridge kit comes with new Centry Troubleshooting and Repair Manual, Centry pocket fault code manual, laminated Centry wire harness repair diagram, and other useful product information.

Now that there are two cartridges supporting different markets (HD Automotive and Centry), the cartridges have been removed from the traditional tool kits. Order tool kit and cartridges separately.

The Compulink CELECT 5.0 cartridge offers the diagnostics, the adjustable parameter function, and the calibration transfer in one new cartridge. It supports the recently released '94 Celect engines features including Maintenance Monitor and Trip Information System, as well as '91 Celect. The cartridge kit includes new Celect 5.0 cartridge manual.

The Compulink Centry 1.1 Cartridge supports Centry engines in industrial and agricultural applications. Full diagnostic and adjustable parameter features includes the Fuel Control Actuator test. Listed below is the software functionality for the fuel systems parts. Additional fuel system tool information, dealing primarily with fuel pumps and injectors is available in the recently published Cummins Service Products Fuel Systems Tools Catalog, (Bulletin No. 3377720).

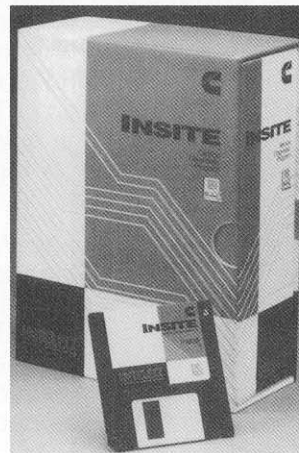
SOFTWARE FUNCTIONALITY	ECHEK		COMPULINK				INSITE	
	HD AUTO V3.0 3824512	CENTR Y V1.0 3824442	PACE V2.2 3823917	PACER V2.0 3823872	CELEC T V5.0 3824544	CENTER Y V1.1 3824259		RPC 3824435
CONTROLLER:								
PACE	✓		✓					✓
PACER	✓			✓			✓	
CELECT	✓				✓			
CENTRY		✓				✓		
J1587 GENERAL PURPOSE	✓						✓	
DIAGNOSTIC:								
FAULT CODES	✓	✓	✓	✓	✓	✓	✓	✓
TESTS	✓	✓	✓	✓	✓	✓	✓	✓
DATA CAPTURE	✓							✓
FILE MANAGER	✓							✓
REPAIR TREES			✓	✓		✓		✓
PROGRAMMING:								
PARAMETERS	✓	✓	✓	✓	✓	✓	✓	✓
CALIBRATIONS			✓	✓	✓	✓	✓	✓
ECM PASSWORD			✓	✓	✓	✓	✓	✓

Cummins is leading the way into the world of PC-based business solutions with the INTELECT family of software products. INSITE is the first release in this effort.

INSITE has extensive service diagnostic information available at the click of a mouse. Operating within Windows, it is the most technician-friendly method of working with and diagnosing electronic engines.

INSITE guides the technician through easy-to-follow troubleshooting assistance for all ECM faults. The graphical displays include:

- Complete wire diagrams
- Sensor location diagrams
- Glossary of technical terms
- "Shop Talk" system of valuable information.



INSITE will run on standard desktop or laptop PCs. It requires an INLINE Datalink Adapter that translates the signals between the INSITE PC and the ECM.

The first INSITE application supports the CELECT engines. Future applications will support all new electronically-controlled engines.

As with ECHEK and COMPULINK software

products, the Cummins distributor parts manager needs to register in IMS those copies that customers intend to use for adjustments. The software serial number is available on the back label of the "Security Key" disk inside the kit.

The software can be loaded on more than one PC within a service facility. Parts managers, warranty administrators, and sales personnel can use the software for reference. However, only one PC at a time can communicate with an ECM under the software security system that is in place. This is one of several anti-tampering measures.

The Cummins Inline Adapter and associated cables connect a PC serial port to an engine datalink when using INSITE and other PC engine diagnostic software. This universal serial datalink adapter enables communication between the PC and the heavy duty engine controller for diagnostics and programming. The Inline Adapter meets industry standards and supports all heavy duty datalink connectors currently in use by OEMs. It has built-in 12VDC-32VDC voltage regulation to protect PCs from high voltage coming off of some datalinks. The Inline Adapter may be purchased as a convenient kit or individual pieces may be purchased separately. Existing ECHEK datalink cables may be used with the Inline Adapter.

Electronic software products are serialized. When one is used to change settings on an ECM, its serial number is recorded in the ECM for audit trail purposes. Cummins requires most programming software to be registered by both serial number and end user.

This registry helps Cummins investigate reports of tampering from engine customers. It also gives the channel an excellent customer database that can be used for new product announcements, fulfilling upgrades, or managing campaigns.

Cummins distributor parts managers are responsible for registering customers using the IMS Registry System. (See bulletin 3886045.)

If you would like to see INSITE in action, the INSITE demo diskettes are available from Cummins Service Products under PN 3824642.

Since 1991, Cummins Service Products has maintained a Help Desk devoted exclusively to supporting customers with electronic service products. The staff receives approximately 50 calls a week from customers seeking assistance with installing software or troubleshooting system problems. General product information is available from the 1-800-433-9341 Order Desk, but for troubleshooting assistance, please call the Electronics Help Desk at 812-377-8136, (7:30-4:30 EST. M-F).

Fuel System Tools Part Numbers

ECHEK	P/N
ECHEK HD AUTOMOTIVE 3.0 CARTRIDGE KIT	3824512
ECHEK CENTRY 1.0 CARTRIDGE KIT	3824442
ECHEK ADAPTER FOR MPSI PROLINK 9000	3824240
(User orders cartridges separately depending on needs.)	
ECHEK KIT WITHOUT CARTRIDGES	3824511
Includes the following:	
ECHEK MONITOR	3824437
CARRYING CASE	3823833
CABLE, DB25F TO 2-PIN W'PACK W/ CIG PLUG	3824438
CABLE, DB25F TO 6-PIN DEUTSCH	3824439
CABLE, DB25F TO 8-PIN AMP	3824440
CABLE, EXTENSION DB25F-DB25M	3824441
CABLE, BATTERY ADAPTER	3823955
(User orders cartridges separately depending on needs.)	
Optional cables available separately:	
CABLE, DB25F to CAT for 3824592 or 3824437	3824445
CABLE, DB25F to DDEC for 3824592 or 3824437	3824446

INSITE	P/N
INSITE CELECT 1.0 SOFTWARE KIT	3824638
INLINE DATALINK ADAPTER KIT	3824592
Order INLINE separate from INSITE. Kit includes:	
INLINE DATALINK ADAPTER DB9F-DB25M	3824593
CABLE, DB25F-2PIN WEATHER-PACK DATALINK	3824438
CABLE, DB25F-6PIN DEUTSCH DATALINK (3FT)	3824439
CABLE, DB25F-8PIN AMP DATALINK (3FT)	3824440
CABLE, DB25F-DB25M EXTENSION (15FT)	3824441
CABLE, DB9F-DB9M PC SERIAL (1.5FT)	3824594
CABLE, DB25F-DB9M PC SERIAL (1.5FT)	3824595
ADAPTER, DB25M-DB25M GENDER COMPACT	3824596
PLASTIC CARRYING CASE (ALL PURPOSE)	3824597
SHEET, INSTRUCTIONS	3377728

Optional cables available separately:

CABLE, DB25F to CAT for 3824592 or 3824437
3824445

CABLE, DB25F to DDEC for 3824592 or 3824437
3824446

COMPULINK	P/N
COMPULINK CARTRIDGES	
PT PACER 2.0	3823872
PAGE 2.2	3823917
CENTRY 1.0	3824259
CELECT 5.0	3824544
FIELD REPROGRAMMABLE CARTRIDGE	3824435
COMPULINK KIT	3823548
Includes the following:	
COMPULINK II TOOL	3823549
BATT, 6V GEL CELL (Order 2 at a time.)	3823263
BATT CHRGR, 115VAC-12VDC	3822739
CABLE, BATTERY CHARGER	3823479
CABLE, POWER EXTENSION	3823476
CABLE, DB25-DB25 M-F (PC)	3824253
CABLE, 2-PIN WEATHERPACK w/ CIGARETTE PLUG	3823477
CABLE, 8-PIN AMP	3823478
CABLE, 6-PIN DEUTSCH	3823968
MANUAL, COMPULINK	3810391

(User orders cartridges separately depending on needs.)

Technical Talk

In Parts Professional 19, we discussed the low sulfur fuel issue. In that issue, we promised an update. In this issue, we are featuring an update.

"As most of you are aware, on October 1, 1993, low sulfur (.05% by weight) diesel fuel became an EPA mandate for on-highway use.

This low sulfur fuel introduction caused a big concern in the first few months after implementation. The concerns arose from reports of field failures of throttle shafts O-rings leaking on PT style fuel pumps. Similar failures on other engine manufacturers' fuel systems occurred during the same time frame.

Let's take a quick look at some of the things that have contributed to the high incidence of reported field failures and what brought about those failures. What process changes took place with the fuel manufacturers that contributed to fuel leaks and why.

In order for the fuel manufacturers to meet the EPA mandate, they used a process called hydrotreating. This process caused a reduction in the aromatics and diaromatics in diesel fuel.

High sulfur fuel traditionally contains 15% or more aromatics, where the new low sulfur fuel contained less than 10% aromatics. Some low sulfur fuels tested were in the 2.4 to 6.5 percent range. The aromatic content in diesel fuel has an effect on the swell of certain elastomer seals used in a fuel system.

Elastomer seal swell will affect its ability to compensate for normal wear over the course of the use life of a seal. It is the aromatics and diaromatics found in fuel that actually interact with the seal's elastomer and in doing so contribute to the seal's ability to swell and compensate for normal wear.

Low diaromatic fuel (less than 8%) causes certain (throttle shaft) O-rings in high mileage (approximately 500,000 miles) fuel systems to shrink, reducing the capability of the O-ring to seal. This seal shrinkage was the cause of the significant increase in the number of fuel systems related field problems.

When a seal is in a high sulfur, high aromatic, diesel fuel for an extended period of time it will swell and take a compression set. Switching the seal from the high sulfur high aromatics to low sulfur low aromatic (below 8% aromatics), will cause the seal to shrink.

Evaluation of the failed O-rings revealed that the O-rings were at or near the end of their normal useful life. Replacement of the old O-ring with a new one of the same part number was the solution to this leaking throttle shaft problem.

Testing has shown that new and relatively new (age) seals are unaffected by the change in aromatics that accompanied the low sulfur fuel change to the extent to cause leakage. The new seal that has not taken a compression set or been subjected to high wear does not experience the shrinkage that the older high mileage seal does.

While a fuel leak is always a serious issue, changing the leaking seal with a new one of the same part number is the best solution. The seal problems that showed up in the early days of low sulfur fuel introduction peaked early and have now all but disappeared.

Conclusion, no major changes in elastomer material or design have been necessary. Test results confirm that current elastomer product performance justifies its continued use."

Parts Promotional List

Part #	Description	Issue Date	Price
33381213	New Engine Parts Warranty	6/94	.10
3381292	A, B, C, New Parts Warranty	8/93	.10
3385550	NOW Engine Sticker	9/88	.10
3385556	444 Pulse Exhaust Manifold	3/90	.10
3385584	C Brake Cross Ref. Guide	4/91	.10
3385589	Water Pump Poster		.10
3385709	PT Pacer Mailer		.10
3385742	L10 Bolt Sizer		.10
3385756	Camsft Feature/Benefits Flyer	2/90	.10
3385755	Cranksft Feature/Benefit Flyer	2/90	.10
3385758	Inj. Cups Feature/Benefit Flyer	2/90	.10
3385836	How To Talk To CECO 1-800-Diesel	10/90	.10
3385838	Asso. Parts Guide Booklet	11/90	.10
3385852	Parts Overhaul Kit Co-op Ad	1/91	.10
3385877	Cyl Kit Competitive Brochure	7/91	.10
3385878	NT/L10 Cyl Kit Cross Ref.	6/92	.25
3385899	NOW Certificate	10/93	.10
3385914	Prem. Cyl Ad Slick 85line	6/92	.10
3385915	Prem. Cyl Ad Slick 120line	6/92	.10
3385917	Cummins Care Aftermrkt Flyer	8/92	.10
3385932	NOW Poster	11/92	1.00
3385933	NOW #10 Flyer	11/92	.10
3385934	NOW Ad Slick 85line	2/93	.10
3385935	NOW Ad Slick 120line	2/93	.10
3385936	NOW Folder	11/92	.25
3385937	NOW Window Decal	4/93	2.00
3385950	CEPC Flyer	3/93	.10
3385958	Cummins Care Poster	3/93	1.00
3385959	Genuine Overhaul Poster	3/93	1.00
3386577	Cummins Care Shopping Bag		.25
3386741	NOW Cost Estimate Wksheet	10/89	.10
3386848	NOW Pre-Overhaul Checklist	4/94	1.00
3386857	NOW Pre-Overhaul Checklist	10/89	.10
3386858	NOW Component Insp. Chk.	10/89	.10
3386866	NOW Program Manual	10/93	1.00
3387320-01	Parts Professional #1		1.00
3387320-02	Parts Professional #2		1.00
3387320-03	Parts Professional #3		1.00
3387320-04	Parts Professional #4		1.00
3387320-05	Parts Professional #5		1.00
3387320-06	Parts Professional #6		1.00
3387320-07	Parts Professional #7		1.00
3387320-0	Parts Professional #8		1.00

Part #	Description	Issue Date	Price
3387320-09	Parts Professional #9		1.00
3387320-10	Parts Professional #10		1.00
3387320-11	Parts Professional #11		1.00
3387320-12	Parts Professional #12		1.00
3387320-13	Parts Professional #13		1.00
3387320-14	Parts Professional #14		1.00
3385815	Parts Professional #15		1.00
3385816	Parts Professional #16		1.00
3385817	Parts Professional #17	8/93	1.00
3385818	Parts Professional #18	11/93	1.00
3385819	Parts Professional #19	2/94	1.00
3385820	Parts Professional #20	6/94	1.00
3698700	Parts Professional #21	11/94	1.00
3624186	Parts Professional Binder w/ Issues 1-19		5.00
3698522	Parts Professional Binder w/ Issues 20 -		3.00
3624349	Maintenance Requirements-Lam.	11/93	.10
3624360	Maintenance Requirements Flyer	2/92	.10
3822013	New/ReCon Kits & Sets Booklet	6/92	1.00
3385888	Premium Blue Flyer	2/92	.10
3385889	Premium Blue Ad Slick 85line	4/92	.10
3385890	Premium Blue Ad Slick 120line	4/92	.10
3385891	Premium Blue Availability Direc	4/93	.15
3385892	Premium Blue Data Sheet	7/92	.10
3385893	Premium Blue 2000 Data Sheet	7/92	.10
3385894	Premium Blue/P. Blue 2000 Folder	7/92	.50
3385897	Premium Blue Value Wheel	7/92	.50
3385918	Premium Blue/P. Blue 2000 Poster	7/92	1.00
3385920	Premium Blue A-OK Analysis Flyer	2/93	.10
3385938	Premium Blue 2000 Ad Slick 85line	10/92	.10
3385939	Premium Blue 2000 Ad Slick 120line	10/92	.10
3385941	Premium Blue Customer Kits	9/92	2.00
3385960	Premium Blue 2000 Ad Insert	3/93	.15
3385985	Premium Blue 2000 #10 Mailer		.10
3385896	Premium Blue 2000 Brochure	6/94	.10
3385973	Cummins Care Ad Slick 85line	6/93	.10
3385974	Cummins Care Ad Slick 120line	6/93	.10
3385979	Parts Management Dev. Program	7/93	125.00
3385994	1-800 Diesels Flier	9/93	.25
3385999	NOW Premium Plan Certificate	10/93	.10
3698510	Fan Clutch Brochure	3/94	.25

Part #	Description	Issue Date	Price
3698530	Extarder Brake Brochure	6/94	.25
3698531	Extarder Brake Flyer	6/94	.25
3698533	Extarder Brake B Parts Manual	6/94	.25
3698534	Extarder Brake C Parts Manual	6/94	.25
3698535	Extarder Brake B Installation Man.	6/94	.25
3698536	Extarder Brake C Installation Man.	6/94	.25
3698537	Extarder Brake Air Supply Manual	6/94	.25
3698538	Extarder Brake Direct Mail	6/94	.25
3698540	Extarder Brake Counter Card	6/94	.50
3698542	Extarder Brake Ad Slick	6/94	.10
3698549	MVP Ad Slick (US version)	9/94	.10
3698550	Know How Notepad	9/94	1.00
3698551	MVP Poster (US version)	9/94	1.00
3698552	MVP Dealer Letter (US version)	9/94	.10

Part #	Description	Issue Date	Price
3698553	MVP Counter Card (Canadian version)	9/94	.50
3698555	MVP Ad Slick (Canadian version)	9/94	.10
3698556	MVP Direct Mail (Canadian version)	9/94	.25
3698557	MVP Poster (Canadian version)	9/94	1.00
3698558	MVP Dealer Letter (Canadian version)	9/94	.10
3698554	MVP Coupon Pad (Canadian version)	9/94	.10
3698571	MVP Counter Card (US version)	9/94	.50
3698572	MVP Counter Card Pad (US version)	9/94	.10
3698573	MVP Direct Mail (US version)	9/94	.25

Translated Materials

FRENCH

3385970	French Premium/ P. Blue 2000	3/93	.25
3385971	French Premium Blue 2000 Value	3/93	.25
3385972	French Premium Blue 2000 Data	3/93	.10
338733401	French Parts Professional #1	---	1.00
338733402	French Parts Professional #2	---	1.00
338733403	French Parts Professional #3	---	1.00
338733404	French Parts Professional #4	---	1.00
338733405	French Parts Professional #5	---	1.00
338733406	French Parts Professional #6	---	1.00
338733407	French Parts Professional #7	---	1.00
338733408	French Parts Professional #8	---	1.00
338733409	French Parts Professional #9	---	1.00
338733410	French Parts Professional #10	---	1.00
338733411	French Parts Professional #11	---	1.00
3385875	French Parts Professional #12	---	1.00
3385876	French Parts Professional #13	---	1.00
3385867	French Parts Professional #17	---	1.00
3385868	French Parts Professional #18	---	1.00

SPANISH

3150474	Spanish Turbocharger Flyer	3/93	.10
3150475	Spanish Camshaft Flyer	3/93	.10
3150476	Spanish Gasket Flyer	3/93	.10
3150477	Spanish Crankshaft Flyer	3/93	.10
3150478	Spanish Valves Flyer	3/93	.10
3150479	Spanish Injector Cups Flyer	3/93	.10
3150480	Spanish Injector Components	3/93	.10
3385882	Spanish Cylinder Kit Competitive Brochure	3/93	.10
3385957	Spanish Aftermarket Flyer	3/93	.10
3385975	Spanish Cummins Care Poster	3/93	.10
3385976	Spanish Genuine Overhaul Poster	3/93	.10
3387335-01	Spanish Parts Professional #1	---	1.00
3387335-02	Spanish Parts Professional #2	---	1.00
3387335-03	Spanish Parts Professional #3	---	1.00
3387335-04	Spanish Parts Professional #4	---	1.00
3387335-05	Spanish Parts Professional #5	---	1.00
3387335-06	Spanish Parts Professional #6	---	1.00
3387335-07	Spanish Parts Professional #7	---	1.00
3387335-08	Spanish Parts Professional #8	---	1.00
3387335-09	Spanish Parts Professional #9	---	1.00
3387335-10	Spanish Parts Professional #10	---	1.00
3387335-11	Spanish Parts Professional #11	---	1.00
3385854	Spanish Parts Professional #12	---	1.00
3385855	Spanish Parts Professional #13	---	1.00
3385856	Spanish Parts Professional #14	---	1.00
3385857	Spanish Parts Professional #15	---	1.00
3385858	Spanish Parts Professional # 16	---	1.00
3385859	Spanish Parts Professional # 17	6/94	1.00
3385860	Spanish Parts Professional # 18	7/94	1.00
3385861	Spanish Parts Professional # 19	8/94	1.00
3385862	Spanish Parts Professional # 20	9/94	1.00

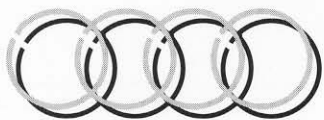
Quiz 21

How much of a Parts Professional are you? If you complete this quiz and score 100%, we will send you your choice of a Parts Professional bag, Parts Professional calculator, Parts Professional business card holder or Parts Professional mag light.

Quizzes must be received by March 30, 1995.

1. Genuine Cummins ReCon injectors are important to the customer because they
 - a. increase reliability of the engine
 - b. increase durability of the engine
 - c. improved performance
 - d. all of the above.
2. When it comes to the durability of the ReCon injector and the engine, there are three critical characteristics:
 - a. the injector cup
 - b. top stop settings
 - c. barrel and plunger clearance specifications
 - d. all of the above.
3. At the ReCon injector plant, every cup that is re-qualified and used on a standard XX injector is hydraulically flow tested.
 - a. True
 - b. False
4. There have been over ____ changes to the ReCon STC injector since it was originally introduced.
 - a. 5
 - b. 100
 - c. 52
 - d. 0
5. Which statement is true? Cummins ReCon warranties on injectors are
 - a. Standard XX injector warranty is 1 year, unlimited miles
 - b. Premium PX injector warranty is 2 years, 125,000 miles
 - c. B&C injector warranty is 1 year, unlimited miles
 - d. All of the above are true statements.
6. Since 1991, Cummins Service Products has maintained a Help Desk devoted exclusively to supporting customers with electronic service products.
 - a. True
 - b. False
7. The service products for the fuel system include
 - a. INSITE
 - b. ECHEK
 - c. COMPULINK
 - d. All of the above.
8. INSITE guides the technician through easy-to-follow trouble shooting assistance for all ECM faults.
 - a. True
 - b. False
9. Cummins Service Products offers a complete line of genuine tools to support Cummins Fuel Systems. These are the only products certified:
 - a. to bring fuel systems components back to specification
 - b. to read proprietary broadcasts from ECMs
 - c. to make programming adjustments
 - d. All of the above.
10. Premium Plus has the same properties that diesel fuel has. It has
 - a. flash point
 - b. specific gravity
 - c. cetane number
 - d. all of the above
11. To control deposit formation, it is recommended that Premium Plus Injector Cleaner be added to the fuel every _____ miles.
 - a. 5,000
 - b. 1,000
 - c. 10,000
 - d. 15,000
12. Premium Plus Injector Cleaner is designed to remove carbon buildup from injectors quickly and easily.
 - a. True
 - b. False
13. If Premium Plus Injector Cleaner has not be used as a regular additive, and performance problems suggest a carbon build-up on the injectors, a Premium Plus Flush Kit is recommended.
 - a. True
 - b. False
14. If you score 100%, your first choice for the Parts Professional prize is a
 - a. Parts Professional bag
 - b. Parts Professional mag light
 - c. Parts Professional business card holder
 - d. Parts Professional calculator
15. If you score 100%, your second choice for the Parts Professional prize is a
 - a. Parts Professional bag
 - b. Parts Professional mag light
 - c. Parts Professional business card holder
 - d. Parts Professional calculator

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