

Gm Ls Installation Guide

Although not quite the stout heavy-duty performer as its big brother, the Turbo 400, the Turbo 350 transmission is a fine, durable, capable, and when modified, stout performer in its own right. Millions of GM cars and trucks have been built with Turbo 350 automatic transmissions. There always comes a time when the old transmission shows signs of wear. At some point, even the best transmissions need to be rebuilt. In *GM Turbo 350 Transmissions: How to Rebuild & Modify*, respected automotive technical author Cliff Ruggles guides you through the complex rebuild procedure of GM's popular rear-wheel-drive automatic transmission. With his proven style, Ruggles goes through the step-by-step rebuild and performance upgrade procedures in a series of full-color photos. He includes instruction on removal and installation, tear-down procedures, parts inspection and replacement, as well as performance mods and shift kit installation. Time-saving tips are part of every buildup as well. Automatic transmissions are a mystery to most. Even if you end up deciding to have a professional take care of your transmission repair and performance needs, the information contained in this book is crucial to understanding how the power gets from the engine to the road. Add a copy of *GM Turbo 350: How to Rebuild & Modify* to your automotive library today.

The General Motors G-Body is one of the manufacturer's most popular chassis, and includes cars such as Chevrolet Malibu, Chevrolet Monte Carlo and El Camino; the Buick Regal, the Oldsmobile Cutlass Supreme; the Pontiac Grand Prix, and more.

This is a detailed guide on how to install GM's popular LS small-block engines into just about any other vehicle, the most popular conversion in the aftermarket today. Includes an overview

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of the Chevy LS series engine, technical details on swapping transmissions, drivetrain, fuel system, wiring and ECU, exhaust and installation.

GM LS Series Cylinder Head Guide reviews every readily available factory and aftermarket cylinder head designed for the GM LS-Series engines, and delivers the facts about each in an easily comparable and easy to use format.

Modern cars are more computerized than ever. Infotainment and navigation systems, Wi-Fi, automatic software updates, and other innovations aim to make driving more convenient. But vehicle technologies haven't kept pace with today's more hostile security environment, leaving millions vulnerable to attack. The Car Hacker's Handbook will give you a deeper understanding of the computer systems and embedded software in modern vehicles. It begins by examining vulnerabilities and providing detailed explanations of communications over the CAN bus and between devices and systems. Then, once you have an understanding of a vehicle's communication network, you'll learn how to intercept data and perform specific hacks to track vehicles, unlock doors, glitch engines, flood communication, and more. With a focus on low-cost, open source hacking tools such as Metasploit, Wireshark, Kayak, can-utils, and ChipWhisperer, The Car Hacker's Handbook will show you how to: –Build an accurate threat model for your vehicle –Reverse engineer the CAN bus to fake engine signals –Exploit vulnerabilities in diagnostic and data-logging systems –Hack the ECU and other firmware and embedded systems –Feed exploits through infotainment and vehicle-to-vehicle communication systems –Override factory settings with performance-tuning techniques –Build physical and virtual test benches to try out exploits safely If you're curious about automotive security and have the urge to hack a two-ton computer, make The Car Hacker's Handbook your first stop.

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Author Stephen Kim covers the various models of LS engines, so if you're buying an engine you are able to select the best stroker platform. He also guides you through each crucial step of building a stroker or big-inch LS engine. He starts by discussing the stroker options, the maximum stroke and bore for aluminum as well as iron block engines, and the best cranks, rods, and pistons from various aftermarket suppliers. The budding LS engine builder is then able to select parts or the stroker kit that best fits the particular motor and the budget.

Vehicle maintenance.

Discover the latest GM swap technology in this all-new, comprehensive LT swapper's guide. The GM LS engine has dominated the crate and engine-swap market for the past 20 years, and now the new LT engine has become a popular crate engine for swap projects as well. As essentially the next-generation LS, the LT features a compact footprint, lightweight design, and traditional V-8 pushrod architecture similar to its predecessor, so it swaps easily into many classic cars, hot rods, and even foreign sports cars. The new LT1/LT4 takes a bold step forward in technology, using active fuel management, direct injection, an upgraded ignition system, continuous variable valve timing, and a wet- or dry-sump oiling system. With this advanced technology and higher performance, more engine swappers are using the LT platform. Swapping expert and longtime author Jefferson Bryant presents thorough instruction for each crucial step in the LT swap process. Although the new LT shares the same basic engine design

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with the LS, almost all of the LT engine parts have been revised and updated. As a result, the mounting process has changed substantially, including motor-mount location, K-member mounting process, and component clearance; all these aspects of the swap are comprehensively covered. The high-compression direct-injected engines require higher-pressure fuel systems, so the fuel pump and fuel lines must be compatible with the system. LTs also feature revised bellhousing bolt patterns, so they require different adapter plates. The oil pan profile and oiling systems are unique, and this can present crossmember clearance problems. All other important aspects of the swap process are covered, including accessory drives and cooling systems, engine management systems, tuning software, controllers, and exhaust, so you can install the LT in popular GM A- and F-Body platforms as well as almost any other chassis. Solutions for the major swapping challenges, parts compatibility, and clearance issues are provided. Muscle car, hot rod, truck, and sports car owners have embraced the new LT platform and the aftermarket has followed suit with a wide range of products to facilitate swap projects. This book affords comprehensive guidance so you can complete a swap with confidence. If you have a project in the works, are planning a project in the near future, or if you simply want to learn how the swap process takes place, this book is for you.

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SAGES represents a worldwide community of surgeons that can bring minimal access surgery, endoscopy and emerging techniques to patients in every country.

Reviews available cylinder heads designed for the GM LS-Series engines, and delivers the facts about each in an easily comparable and easy to use format. GM LS-series engines are some of the most powerful, versatile, and popular V-8 engines ever produced. They deliver exceptional torque and abundant horsepower, are in ample supply, and have a massive range of aftermarket parts available. Some of the LS engines produce about 1 horsepower per cubic inch in stock form--that's serious performance. One of the most common ways to produce even more horsepower is through forced air induction--supercharging or turbocharging. Right-sized superchargers and turbochargers and relatively easy tuning have grown to make supercharging or turbocharging an LS-powered vehicle a comparatively simple yet highly effective method of generating a dramatic increase in power. In the revised edition of *How to Supercharge & Turbocharge GM LS-Series Engines*, supercharger and turbocharger design and operation are covered in detail, so the reader has a solid understanding of each system and can select the best system for his or her budget, engine, and application. The attributes of Roots-type and centrifugal-type superchargers as

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well as turbochargers are extensively discussed to establish a solid base of knowledge. Benefits and drawbacks of each system as well as the impact of systems on the vehicle are explained. Also covered in detail are the installation challenges, necessary tools, and the time required to do the job. Once the system has been installed, the book covers tuning, maintenance, and how to avoid detonation so the engine stays healthy. Cathedral, square, and D-shaped port design heads are explained in terms of performance, as well as strength and reliability of the rotating assembly, block, and other components. Finally, Kluczyk explains how to adjust the electronic management system to accommodate a supercharger or turbocharger. *How to Supercharge and Turbocharge GM LS-Series Engines* is the only book on the market specifically dedicated to forced air induction for LS-series engines. It provides exceptional guidance on the wide range of systems and kits available for arguably the most popular modern V-8 on the market today.

The GM LS engine has redefined small-block V-8 performance. It's the standard powerplant in many GM cars and trucks and it has been installed in a variety of muscle cars, hot rods, and specialty cars to become the undisputed sales leader of crate engines. The aftermarket has fully embraced the GM Gen IV LS engine platform offering a massive range of heads, intakes, pistons, rods, crankshafts,

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exhaust, and other parts. Seasoned journalist and respected author Richard Holdener reveals effective, popular, and powerful equipment packages for the Gen IV LS engine. With this information, you can select the parts to build a powerful and reliable engine by removing the research time and guesswork to buy a performance package of your own. In this book, performance packages for high-performance street, drag race, and other applications are covered. And then the assembled engine packages are dyno tested to verify that the parts produce the desired and targeted performance increases. This comprehensive build-up guide covers intakes, throttle bodies, manifolds, heads and camshafts, headers and exhaust, engine controls, superchargers and turbochargers, and nitrous oxide. With so many parts available from a myriad of aftermarket companies, it's easy to become confused by the choices. This book shows you a solid selection process for assembling a powerful engine package, shows popular packages, and then demonstrates the dyno results of these packages. As such, this is an indispensable resource for anyone building GM LS Gen IV engine. p.p1 {margin: 0.0px 0.0px 0.0px 0.0px; font: 12.0px Arial}

The photos in this edition are black and white. Skylarks, GSXs, Grand Nationals, Rivas, Gran Sports; the list of formidable performance Buicks is impressive. From the torque monsters of the 1960s to the high-flying Turbo models of the

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'80s, Buicks have a unique place in performance history. During the 1960s, when word of the mountains of torque supplied by the big-inch Buicks hit the street, nobody wanted to mess with them. Later, big-inch Buicks and the Hemi Chryslers went at it hammer and tongs in stock drag shootouts and in the pages of the popular musclecar magazines of the day. The wars between the Turbo Buicks and Mustang GTs in the 1980s were also legendary, as both cars responded so well to modifications. "How to Build Max-Performance Buick Engines" is the first performance engine book ever published on the Buick family of engines. This book covers everything from the Nailheads of the '50s and early '60s, to the later evolutions of the Buick V-8 through the '60s and '70s, through to the turbo V-6 models of the '70s and '80s. Veteran magazine writer and Buick owner Jefferson Bryant supplies the most up-to-date information on heads, blocks, cams, rotating assemblies, interchangeability, and oiling-system improvements and modifications, along with details on the best performance options available, avenues for aftermarket support, and so much more. Finally, the Buick camp gets the information they have been waiting for, and it's all right here in "How to Build Max-Performance Buick Engines."

Introduced in 1997, the GM LS engine has become the dominant V-8 engine in GM vehicles and a top-selling high-performance crate engine. GM has released a

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wide range of Gen III and IV LS engines that deliver spectacular efficiency and performance. These compact, lightweight, cutting-edge pushrod V-8 engines have become affordable and readily obtainable from a variety of sources. In the process, the LS engine has become the most popular V-8 engine to swap into many American and foreign muscle cars, sports cars, trucks, and passenger cars. To select the best engine for an LS engine swap, you need to carefully consider the application. Veteran author and LS engine swap master Jefferson Bryant reveals all the criteria to consider when choosing an LS engine for a swap project. You are guided through selecting or fabricating motor mounts for the project. Positioning the LS engine in the engine compartment and packaging its equipment is a crucial part of the swap process, which is comprehensively covered. As part of the installation, you need to choose a transmission crossmember that fits the engine and vehicle as well as selecting an oil pan that has the correct profile for the crossmember with adequate ground clearance. Often the brake booster, steering shaft, accessory pulleys, and the exhaust system present clearance challenges, so this book offers you the best options and solutions. In addition, adapting the computer-control system to the wiring harness and vehicle is a crucial aspect for completing the installation, which is thoroughly detailed. As an all-new edition of the original top-selling title, LS

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Swaps: How to Swap GM LS Engines into Almost Anything covers the right way to do a spectrum of swaps. So, pick up this guide, select your ride, and get started on your next exciting project.

This new color edition is essential for the enthusiast who wants to get the most performance out of this new engine design but is only familiar with the older Chevy small-blocks. Covered is everything you need to know about these engines, including the difficult engine removal and installation, simple engine bolt-ons, electronic controls for the Generation III engine, and detailed engine builds at four different power levels. How to Swap GM LS-Series Engines into (Almost) Anything shows how to fit these powerhouse engines into popular GM F-Body cars, such as the Camaro and Firebird, but also how install these powerplants non-GM muscle cars, sports cars, trucks, and of course, hot rods. This book includes a historical review, complete specs and detailed information, so you can select and fit the best LS engine for a particular vehicle and application. A section on mounting kits explains how to install these engines into a variety of cars using readily available motor mount kits, universal engine mounts, or fabricated mounts. In addition, the book shows you how to perform necessary oil pan modifications and adapt accessory drivers as well as choose the most suitable fuel pump, exhaust system, wiring harness, and electronic control module.

The mysteries of the versatile LS series engines are unlocked in this GM Engine Performance Techbook. Covering everything from engine overhaul, cylinder head

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selection and modification, induction and fuel systems, camshafts and valve train, to beefing-up the bottom end, turbo and supercharger add-ons, engine swaps and extreme builds, this Techbook will help you get the most from your LS-powered vehicle. The GM LS engine has revolutionized the muscle car and the high-performance V-8 market. It has become a favorite engine to swap into classic cars because it offers a superior combination of horsepower, torque, and responsiveness in a compact package. As such, these modern pushrod V-8 engines are installed in vintage GM muscle cars with relative ease, and that includes Chevelles and other popular GM A-Body cars. In fact, General Motors manufactured about 500,000 Chevelles and A-Body cars between 1968 and 1970 alone. Jefferson Bryant, author of *LS Swaps: How To Swap GM LS Engines into Almost Anything*, has performed many LS swaps throughout his career, and has transplanted the LS into several A-Body cars. In this comprehensive guide, he provides detailed step-by-step instructions for installing an LS powerplant into a Chevelle, Buick GS, Oldsmobile Cutlass, and Pontiac GTO. To successfully install an LS engine, you need to select or fabricate motor mounts and adapter plates to mount the engine to the chassis. Also, you need to integrate the electronic engine controls and wiring harness to the A-Body car. If you run a fuel-injection system, a new tank or high-pressure fuel pump, fuel lines, and related equipment must be installed. Bryant covers all of these crucial steps and much more. He explains essential procedures, time saving techniques, and solutions to common

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problems. In addition, he performs a new LT swap into an A-Body car. Swapping an LS engine into an A-Body is made much easier with a comprehensive guidebook such as this, whether you plan on doing it yourself or decide to have a shop do it for you. A huge and thriving aftermarket provides a wide range of suspension, brake, steering, chassis, and other parts that produce functional improvements. Before you tackle your LS Swap project, arm yourself with this vital information to guide you through the process. p.p1 {margin: 0.0px 0.0px 0.0px 0.0px; font: 12.0px Arial}

This restoration guide provides in-depth, step-by-step information of common restoration procedures and features brilliant color photos so the reader can complete a bumper-to-bumper restoration in their own garage.

Provides excellent instruction and guidance for selecting the best engine for a budget, choosing the adapter plates and engine mounts, dropping the engine in the car, selecting the ideal transmission and drivelines, and completing all facets of the swap. Engine production for the typical car manufactured today is a study in mass production. Benefits in the manufacturing process for the manufacturer often run counter to the interests of the end user. What speeds up production and saves manufacturing costs results in an engine that is made to fall within a wide set of standards and specifications, often not optimized to meet the original design. In short, cheap and fast engine production results in a sloppy final product. Of course, this is not what enthusiasts want out of their engines. To maximize the performance of any engine, it

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must be balanced and blueprinted to the exact tolerances that the factory should have adhered to in the first place. Four cylinder, V-8, American or import, the performance of all engines is greatly improved by balancing and blueprinting. Dedicated enthusiasts and professional racers balance and blueprint their engines because the engines will produce more horsepower and torque, more efficiently use fuel, run cooler and last longer. In this book, expert engine builder and veteran author Mike Mavrigian explains and illustrates the most discriminating engine building techniques and perform detailed procedures, so the engine is perfectly balanced, matched, and optimized. Balancing and blueprinting is a time consuming and exacting process, but the investment in time pays off with superior performance. Through the process, you carefully measure, adjust, machine and fit each part together with precision tolerances, optimizing the design and maximizing performance. The book covers the block, crankshaft, connecting rods, pistons, cylinder heads, intake manifolds, camshaft, measuring tools and final assembly techniques. For more than 50 years, balancing and blueprinting has been an accepted and common practice for maxi

This is an engine rebuilding and modification guide that includes sections on history, engine specs, disassembly, cylinder block and bottom end reconditioning, cylinder heads and valvetrain reconditioning, balancing, step-by-step engine reassembly, torque values, and OEM part numbers for the popular Chevy LS series of engines.

The General Motors G-Body is one of the manufacturer's most popular chassis, and

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includes cars such as Chevrolet Malibu, Monte Carlo, and El Camino; the Buick Regal, Grand National, and GNX; the Oldsmobile Cutlass Supreme; the Pontiac Grand Prix, and more. This traditional and affordable front engine/rear-wheel-drive design lends itself to common upgrades and modifications for a wide range of high-performance applications, from drag racing to road racing. Many of the vehicles GM produced using this chassis were powered by V-8 engines, and others had popular turbocharged V-6 configurations. Some of the special-edition vehicles were outfitted with exclusive performance upgrades, which can be easily adapted to other G-Body vehicles. Knowing which vehicles were equipped with which options, and how to best incorporate all the best-possible equipment is thoroughly covered in this book. A solid collection of upgrades including brakes, suspension, and the installation of GMs most popular modern engine-the LS-Series V-8-are all covered in great detail. The aftermarket support for this chassis is huge, and the interchangeability and affordability are a big reason for its popularity. It's the last mass-produced V-8/rear-drive chassis that enthusiasts can afford and readily modify. There is also great information for use when shopping for a G-Body, including what areas to be aware of or check for possible corrosion, what options to look for and what should be avoided. No other book on the performance aspects of a GM G-Body has been published until now, and this book will serve as the bible to G-Body enthusiasts for years to come.

In GM LS-Series Engines: The Complete Swap Manual, expert Joseph Potak walks you

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through all the steps involved in installing an LS engine into any vehicle, from concept to completion. Variants of GM's groundbreaking family of LS engines are installed in everything from the company's most mundane panel vans to its earth-shaking Corvette ZR1. First underhood in the 1997 Corvette, the LS1, and its successors have proven powerful, reliable, and amazingly fuel efficient. Since that time, more than a dozen variants have been produced, ranging from bulletproof, iron-block 4.8-liter workhorses to the supercharged 7.0-liter LS7. Performance enthusiasts have embraced this remarkable V-8, and it has quickly become a favorite for engine swaps. Why? Because the versatile engine offers fantastic power, a compact design, and light weight, and it responds very well to performance modifications. The key to this performance is a sophisticated electronics package that can intimidate even the most adventurous hot rodder. In *GM LS-Series Engines: The Complete Swap Manual*, professional LS-series engine specialist and technician Joseph Potak details all the considerations involved in performing this swap into any vehicle. With clear instructions, color photos, diagrams, and specification tables, Potak guides you through: Mounting your new engine
Configuring the EFI system
Designing fuel and exhaust systems
Sourcing the correct accessories for your application
Transmission, torque converters, and clutches
Performance upgrades and power-adders
Troubleshooting, should problems arise
This is the ultimate guide to installing an LS in your project car.

This revised and updated color edition of *How to Rebuild the Small-Block Ford* walks

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you step by step through a rebuild, including: planning your rebuild, disassembly and inspection, choosing the right parts, machine work, assembling your engine, and first firing and break-in.

GM LS-Series EnginesThe Complete Swap ManualMotorbooks

p.p1 {margin: 0.0px 0.0px 0.0px 0.0px; font: 12.0px Arial} The GM LS Gen IV engine dominates the high-performance V-8 market and is the most popular powerplant for engine swap projects. In stock trim, the Gen IV engines produce class-leading horsepower. The Gen IV's rectangular-port heads flow far more air/fuel than the Gen III cathedral-port heads. However, with the right combination of modification procedures and performance parts, you can unlock the performance potential of the Gen IV engines and reach almost any performance target. Engine-building and LS expert Mike Mavrigian guides readers through the best products and modification procedures to achieve maximum performance for a variety of applications. To make more horsepower, you need to flow more air and fuel into the engine; therefore, how to select the industry-leading aftermarket heads and port the stock heads for superior performance are comprehensively covered. The cam controls all major timing events in the engine, so determining the best cam for your engine package and performance goals is revealed. But these are just a few aspects of high-performance Gen IV engine building. Installing nitrous oxide or supercharger systems and bolting on cold-air intakes, aftermarket ignition controls, headers, and exhaust system parts are all

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covered in detail. The foundation of any engine build is the block, and crucial guidance for modifying stock blocks and aftermarket block upgrade advice is provided. Crankshafts, pistons and rods, valvetrain, oiling systems, intakes and fuel injection, cooling systems are all covered so you can build a complete high-performance package. Muscle car owners, LS engine builders, and many enthusiasts have migrated to the Gen IV engine platform, so clear, concise, and informative content for transforming these stock engines into top performers for a variety of applications is essential. A massive amount of aftermarket parts is available and this provides guidance and instructions for extracting top-performance from these engines. If you're searching for an authoritative source for the best components and modifications to create the ultimate high-performance packages, then you've found it.

For gearheads who want to build or modify popular LS engines, *How to Build and Modify GM LS-Series Engines* provides the most detailed and extensive instructions ever offered for those modding LS engines through the Gen IV models. The LS1 engine shook the performance world when introduced in the 1997 Corvette. Today the LS9 version far eclipses even the mightiest big-blocks from the muscle car era, and it does so while meeting modern emissions requirements and delivering respectable fuel economy. Premier LS engine technician Joseph Potak addresses every question that might come up: Block selection and modifications Crankshaft and piston assemblies Cylinder heads, camshafts, and valvetrain Intake manifolds and fuel system Header

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selection Setting up ring and bearing clearances for specific uses Potak also guides readers through forced induction and nitrous oxide applications. In addition, the book is fully illustrated with color photography and detailed captions to further guide readers through the mods described, from initial steps to final assembly. Whatever the reader's performance goals, *How to Build and Modify GM LS-Series Engines* will guide readers through the necessary modifications and how to make them. It's the ultimate resource for building the ultimate LS-series engine! The Motorbooks Workshop series covers topics that engage and interest car and motorcycle enthusiasts. Written by subject-matter experts and illustrated with step-by-step and how-it's-done reference images, Motorbooks Workshop is the ultimate resource for how-to know-how.

This ultimate guide to installing the LSX in your GM muscle car details all the necessary steps from concept to completion, including fabrication and installation of motor mounts, wiring, fuel system, and driveline considerations.

Psychology is of interest to academics from many fields, as well as to the thousands of academic and clinical psychologists and general public who can't help but be interested in learning more about why humans think and behave as they do. This award-winning twelve-volume reference covers every aspect of the ever-fascinating discipline of psychology and represents the most current knowledge in the field. This ten-year revision now covers discoveries based in

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neuroscience, clinical psychology's new interest in evidence-based practice and mindfulness, and new findings in social, developmental, and forensic psychology. With the increasing popularity of GM's LS-series engine family, many enthusiasts are ready to rebuild. The first of its kind, *How to Rebuild GM LS-Series Engines*, tells you exactly how to do that. The book explains variations between the various LS-series engines and elaborates up on the features that make this engine family such an excellent design. As with all Workbench titles, this book details and highlights special components, tools, chemicals, and other accessories needed to get the job done right, the first time. Appendices are packed full of valuable reference information, and the book includes a Work-Along Sheet to help you record vital statistics and measurements along the way. A compilation of 50 performance articles from the editors of *Super Chevy*, *Chevy High Performance*, and *GM High-Tech Performance* magazines on how to build maximum power and performance on the Chevy LS family of small-block engines.

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