



PRECISION PERFORMANCE
SINCE 2002

LN Engineering Boxster, Cayman, & 911 Engine Program

**Total Engine Solutions for:
1997-2008 models with the M96/M97 Engine**



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Mission

LN Engineering seeks to provide innovative “no-compromise” solutions to the automotive aftermarket to exceed OEM requirements. We strive to deliver the highest level of precision performance for our products using improved material, manufacturing, and finishing technologies, all backed up by industry leading educational resources and support.



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Facility

We do all our machining and manufacturing in the USA in our 18,000 sq/ft facility, located one hour south of Chicago, IL.





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Quality

Every part made by LN Engineering undergoes stringent quality control inspections at multiple points during the manufacturing or reconditioning process to ensure the best possible outcome for our customer.





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Our Partners

LN Engineering offers premium performance parts designed to meet or exceed OEM requirements from industry leaders CP Carrillo, Mahle Motorsport, UEM and Wossner.





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Bore Coating and Plating

LN Engineering has extensive experience with Nikasil type plating as well as the latest in bore coating technologies, APS and PTWA, used by Porsche since 2017.





What is Porsche Bore Scoring?

Bore scoring is the #1 issue with hypereutectic aluminum blocks used by Porsche, including those cast using the Lokasil or Alusil process.

Failures occur when there is a breakdown of the Al-Si cylinder system.

Download the paper [Understanding Bore Scoring in Al-Si Cylinder Systems](#) to learn more.





Why rebuild rather than replace?

- **New complete engines are not available from the factory.**
- **OEM short block program is cost prohibitive and do not address known issues.**
- **Used engines are expensive and may already have unknown issues.**
- **When upgraded with Nickies, engine performance, durability, and reliability is improved.**



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Why LN Engineering?

- **Proven Nickies billet aluminum cylinder liner sleeves**
- **Durable nickel silicon carbide cylinder platings**
- **20+ years experience with performance engine upgrades for Porsche engines**
- **Trusted by top engine builders worldwide**
- **Solutions developed in partnership with and used exclusively by Flat 6 Innovations**



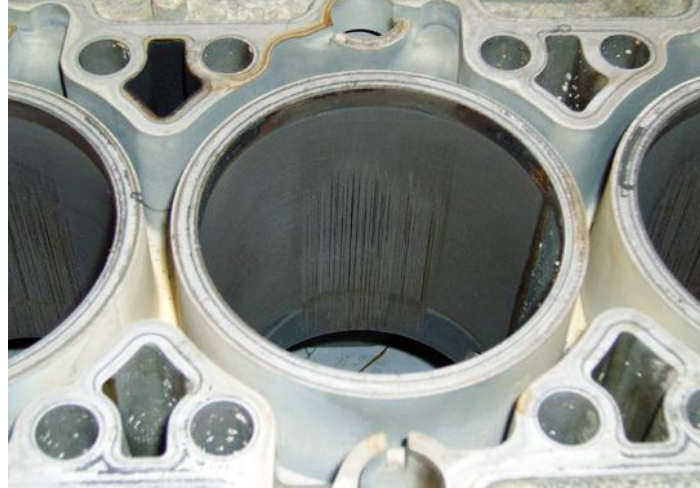
Cylinder Failures We Fix

- **Slipped Sleeve:** Blocks sleeved from the factory have sleeve move and separate from engine case.
- **D-Chunk:** Cylinder forms crack which spreads to bottom of water jacket before returning to the top of the deck, resulting in a D-shaped crack.
- **Scoring:** Failure of piston skirt coating or Lokasil bore resulting in galling of piston skirt and bores.
- **Ovality/Taper:** Bores with more than .002" taper or ovality cannot be successfully re-ringed.



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D-Chunk



Scored Bores



Slipped Sleeve



Why use Nickies

- **Bores are not round even if they have no damage.**
- **Reusing original components and re-ringing is risky.**
- **Even if bores are not currently scored or cracked, this does not mean they will not fail in the future.**
- **When the factory iron-clad piston skirt coating fails, bore scoring and piston scuffing/galling will occur.**
- **Direct Nikasil plating is not always suitable.**
- **Sleeving or repairing single cylinders is never ok.**

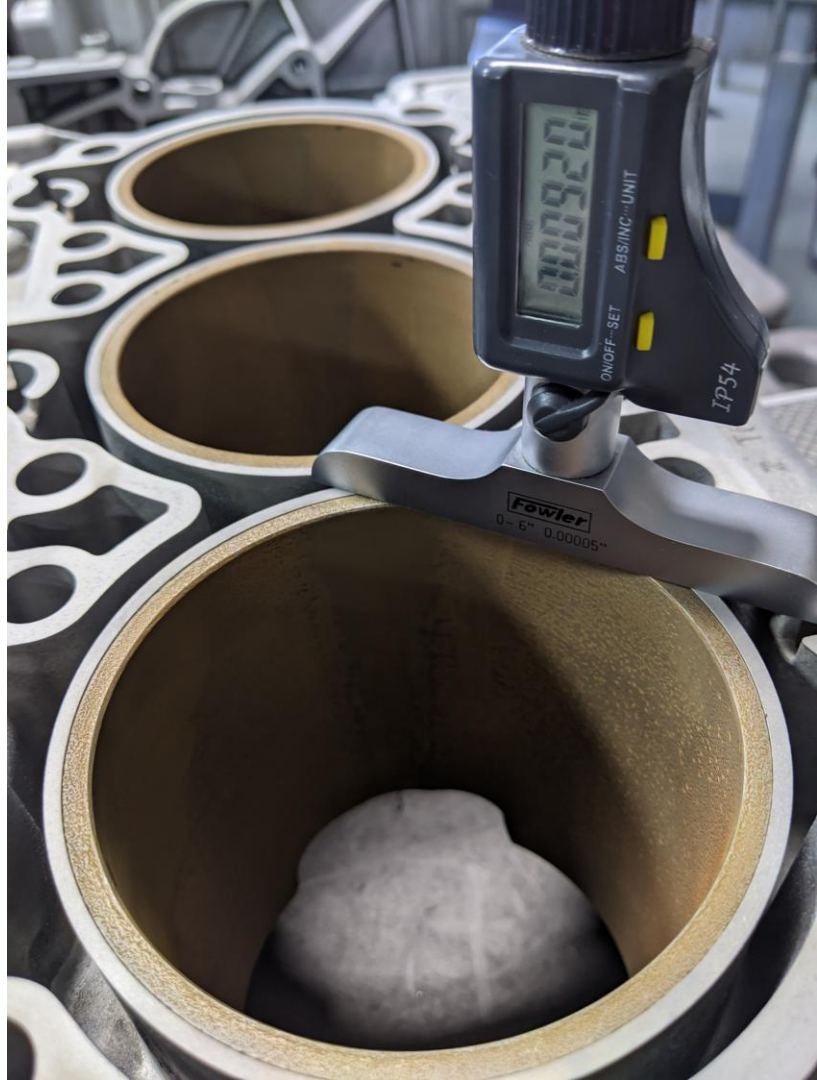


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Nickies

Nickies all-aluminum sleeves prevent dissimilar metal corrosion that occurs when steel or cast iron sleeves are fitted to aluminum blocks.

Cast iron or steel sleeves also have poor heat transfer and higher friction than aluminum Nikasil plated cylinder sleeves.





Nickies

Cast iron or steel sleeves aren't a permanent solution and often lead to repeated failures.

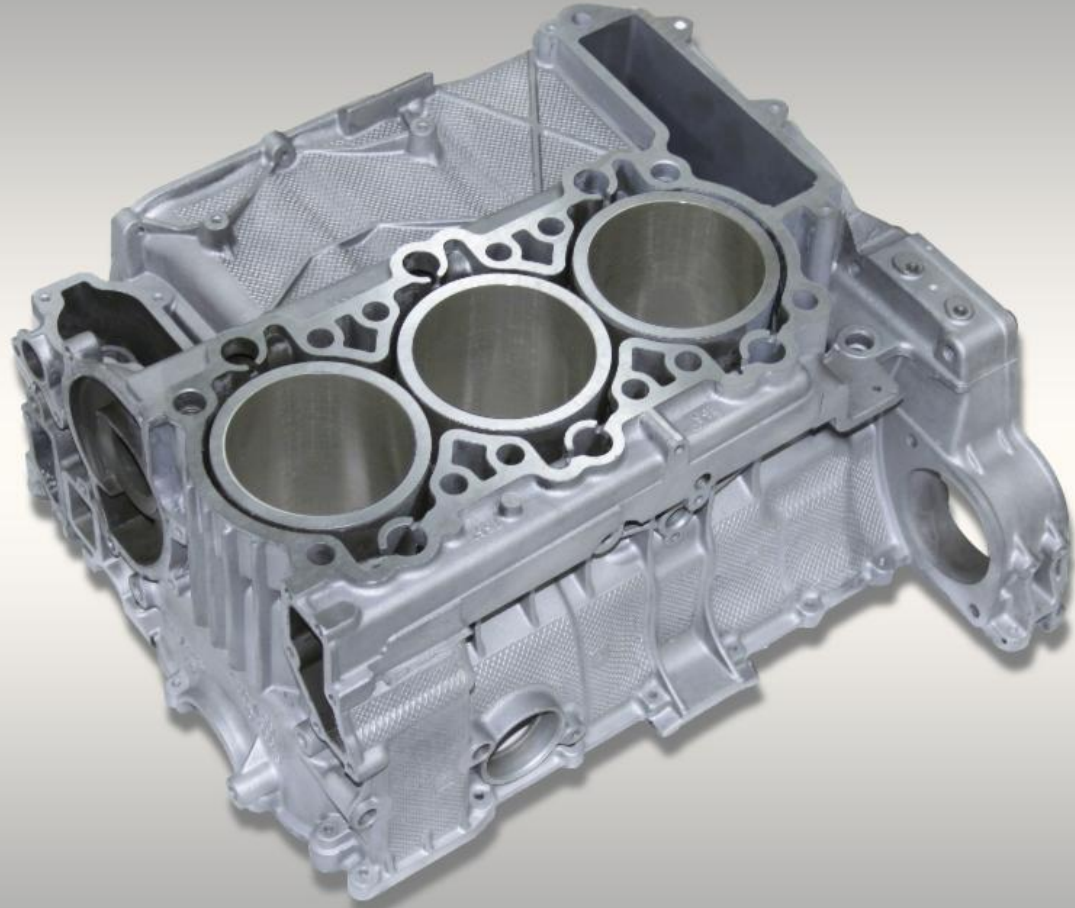
Dissimilar expansion rates require significant interference fit for steel sleeves that can crack the block or can move, causing intermix and head gasket failures.





Nickies

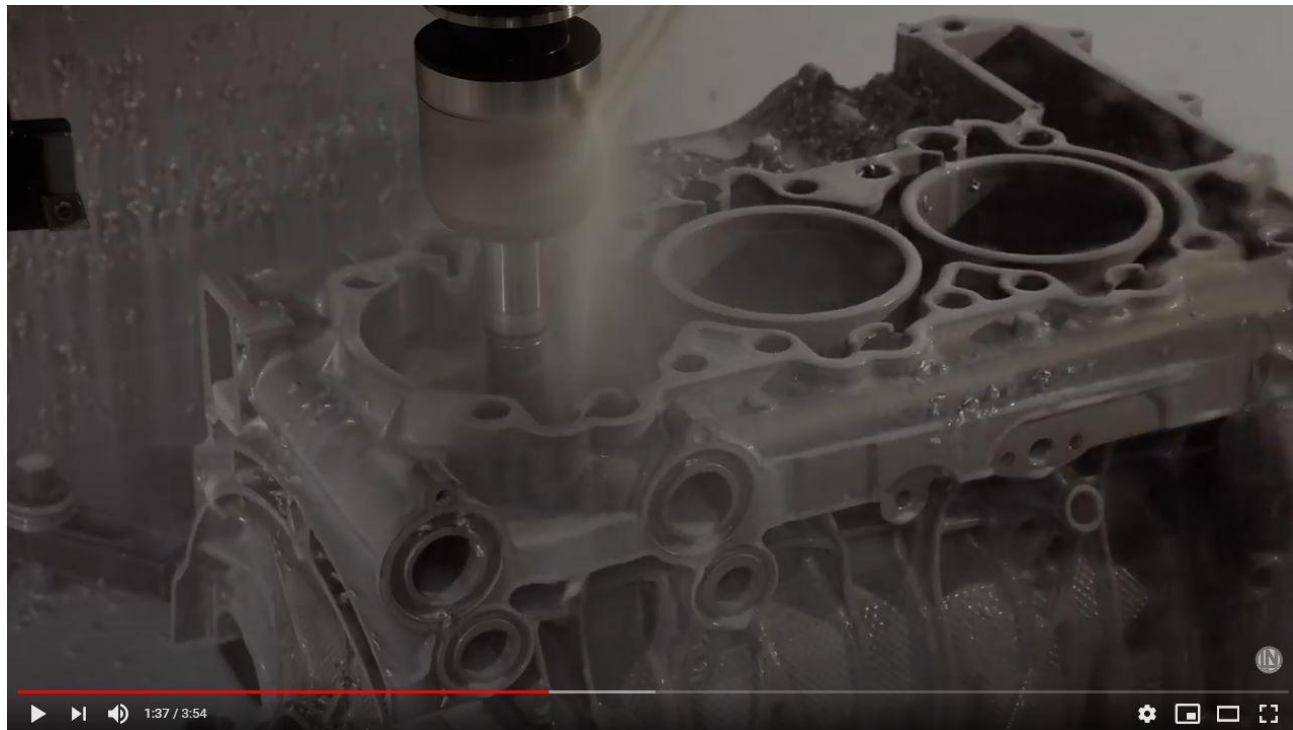
**The Solution:
Billet Aluminum
NSC-Plated
Cylinders**





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Nickies Sleeving Process



Please note this video content requires connection to the Internet and access to YouTube.



Nickies Sleeves

- **Original cylinder is completely machined out of the block and remaining parent metal is used only to locate the new, stronger billet aluminum sleeves.**
- **Block is o-ringed and the new Nickies NSC-plated wet liners are permanently fitted to the engine case.**
- **Nickies prevent future d-chunk, slipped sleeve, and scored bores failures with wear resistant NSC bores.**
- **Nickies are more durable than Lokasil, direct plating of bores, or steel sleeves.**



Repair Sleeves

Blocks with damage to one or more cylinders below the water jacket from a connecting rod failure can be machined for a repair sleeve for significantly less than a used crankcase, if one can be found.





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Closed Deck Conversions

Although not needed for normally aspirated engines, when adding forced induction to an M96 or M97 engine and going larger than 99mm, LN Engineering does offer closed deck conversions.





Displacement Increases

- **2.5 Boxster to 2.7 liters (89mm)**
- **2.7 Boxster/Cayman to 2.9 liters (89mm)**
- **3.2 Boxster to 3.6 liters (99mm) or 3.8 (101mm)**
- **3.4 Boxster, Cayman, or 911 to 3.6 (99mm) or 3.8 (101mm)**
- **3.6 911 to 3.8 (99mm) or 4.0 (101mm)**
- **3.8 to 4.0 (101mm) or 4.1 (102mm)**



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99-08 Porsche 911

106-996.3	3.4 to 3.6 911 99mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.20	3.4 to 3.8 911 101mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.20.MM	3.4 to 3.8 911 Boxster/Cayman S Nickies inc. 101mm Mahle Motorsport set, inc. rings, pins, & clips
106-996.20.WS	3.4 to 3.8 911 Boxster/Cayman S Nickies inc. 101mm Wossner set, inc. rings, pins, & clips
106-996.3T	3.4 to 3.6 911 99mm CP Piston set inc. rings, pins, & clips; 10:1 CR Turbo Conversion
106-996.5	3.6 911 96mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.7	3.6 to 3.8 911 99mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.7.MM	3.6 to 3.8 911 Nickies inc. 99mm Mahle Motorsport set, inc. rings, pins, & clips
106-997.1	3.8 911 99mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-997.2	3.8 to 4.0 911 101mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-997.2.MM	3.8 to 4.0 911 Nickies inc. 101mm Mahle Motorsport Piston set, inc. rings, pins, & clips
106-997.2.WS	3.8 to 4.0 911 Nickies inc. 101mm Wossner Piston set, inc. rings, pins, & clips
106-997.20	3.6 to 4.0 911 101mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-997.4	3.8 to 4.1 911 102mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.96	Porsche 996/987/997 3.4 or 3.6 96mm Nickies
106-996.99	Porsche 986/987 3.2 to 3.6, 3.4 to 3.6, 3.6 to 3.8 99mm Nickies
106-996.101	Porsche 986/987 3.2 to 3.8, 3.4 to 3.8, 3.6 to 4.0 101mm Nickies
106-996.101.CD	Porsche 986/987 3.2 to 3.8, 3.4 to 3.8, 3.6 to 4.0 101mm Closed-Deck Nickies inc. Resurfacing
106-997.99	Porsche 997 3.8 99mm Nickies
106-997.101	Porsche 997 3.8 to 4.0 101mm Nickies
106-997.101.CD	Porsche 997 3.8 to 4.0 101mm Closed-Deck Nickies inc. Resurfacing
106-997.102	Porsche 997 3.8 to 4.1 102mm Nickies



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97-08 Porsche Boxster & Cayman

106-986.1.SPB	Spec Boxster 2.5 85.5mm CP Piston set, inc. rings, pins, & clips TS rings; STD CR
106-986.3	2.5 to 2.7 Boxster 89mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-986.4	2.7 Boxster 85.5mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-986.5	2.7 to 2.9 Boxster 89mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-986.9	3.2 to 3.6 Boxster 99mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-986.9T	3.2 to 3.6 Boxster 99mm CP Piston set inc. rings, pins & clips; 10:1 Turbo Conversion
106-986.20	3.2 to 3.8 Boxster 101mm CP Piston set, inc. rings, pins, & clips; 12:1 CR
106-996.20.MM	3.2/3.4 to 3.8 911 Boxster/Cayman S Nickies inc. 101mm Mahle Motorsport set, inc. rings, pins, & clips
106-996.20.WS	3.2/3.4 to 3.8 911 Boxster/Cayman S Nickies inc. 101mm Wossner set, inc. rings, pins, & clips
106-987.3	3.4 to 3.6 987 Boxster/Cayman 99mm CP Piston Set inc. rings, pins, and clips; 12:1 CR
106-987.3T	3.4 to 3.6 987 Boxster/Cayman 99mm CP Piston Set inc. rings, pins, & clips; 10:1 CR Turbo Conversion
106-987.20	3.4 to 3.8 987 Boxster/Cayman 101mm CP Piston Set inc. rings, pins, and clips; 12:1 CR
106-996.2.SPC	Spec Cayman 3.4 96mm CP Piston set, inc. rings, pins, & clips. TS rings; Stock CR
106-986.85.5	Porsche 986/987 2.5 or 2.7 85.5mm Nickies
106-986.89	Porsche 986/987 2.5 to 2.7 or 2.7 to 2.9 89mm Nickies
106-986.93	Porsche 986/987 3.2 93mm Nickies
106-996.96	Porsche 996/987/997 3.4 or 3.6 96mm Nickies
106-996.99	Porsche 986/987 3.2 to 3.6, 3.4 to 3.6, 3.6 to 3.8 99mm Nickies
106-996.101	Porsche 986/987 3.2 to 3.8, 3.4 to 3.8, 3.6 to 4.0 101mm Nickies
106-996.20.MM	3.4 to 3.8 911 Boxster/Cayman S Nickies inc. 101mm Mahle Motorsport set, inc. rings, pins, & clips



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M96/M97 Upgrades

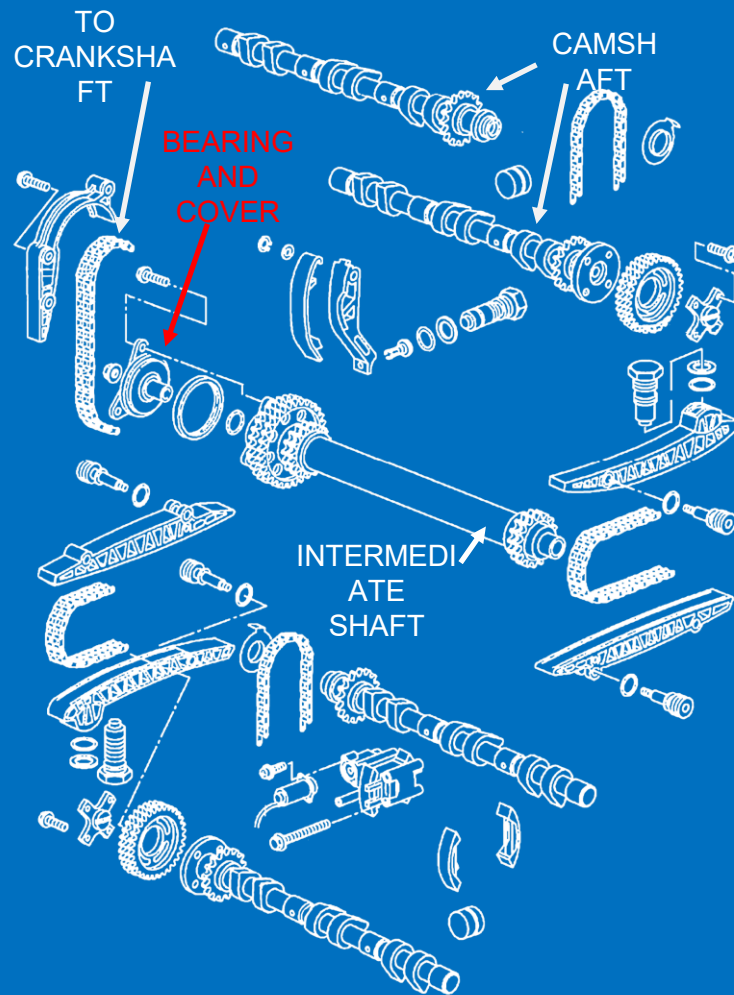
- Porsche Boxster, Cayman, and 911 models from 1997 through 2008 are not dry sump engines like GT3, Turbo and GT2 models with the Mezger engine.
- When tracked, the M96/M97 engine can suffer engine damage from oil starvation, requiring [oil system upgrades](#) to prevent catastrophic failures.
- Additional upgrades are required to make M96 and M97 engines track-ready and to address other known issues with these engines, like the IMS bearing.



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New to the IMS?

- **1997-1999: Dual Row**
- **2000-2001: Dual or Single Row**
- **2002-2005: Single Row**
- **2006-2008: Non-Serviceable (engine disassembly required)**
- **2009 and later: intermediate shaft was eliminated with 9A1/MA1**





IMS Failures by the Numbers

According to Eisen class action lawsuit, 1% of original dual row bearings failed under warranty compared to 8% for the single row. *Current failure rates are much higher.*

Source: <http://eisenimssettlement.com/>

The factory dual row bearing had twice the load capacity of the original single row. *This is why the failure rate is so high on MY2000-2005 cars with the smaller bearing.*

The IMS bearing should always be upgraded when rebuilding the engine.



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LN IMS Service

All intermediate shafts should be inspected for runout exceeding .005" and have the main timing gear pinned to prevent slippage that can lead to engine damage while the engine is apart.





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IMS Retrofit & IMS Solution

106-08.2.2	Single Row Pro IMS Retrofit Kit for MY00-05 with factory single row bearing
106-08.2R	Single Row RND RS Roller IMS Kit for MY00-05 with factory single row bearing
106-08.4	Dual Row IMS Retrofit Kit for MY97-01 with factory dual row bearing
106-08.4R	Dual Row RND RS Roller IMS Kit for MY97-01 with factory dual row bearing
106-08.30	IMS Upgrade Kit for MY06-08 with non-serviceable bearing; engine disassembly required.
106-08.30R	RND RS Roller IMS Upgrade Kit for MY06-08 with non-serviceable bearing; engine disassembly required.
106-08.20	IMS Solution for Single Row IMS MY00-05 with factory single row bearing
106-08.40	IMS Solution for Dual Row IMS MY97-01 with factory dual row bearing
106-08.60	IMS Solution for Dual Row IMS MY06-08 with non-serviceable bearing; engine disassembly required.
106-08.13	IMS Pro Tool Kit
106-08.21	M96 MY06-08 Upgrade + IMS Solution Supplemental Tool Kit
106-08.22	M96 Faultless Tools IMS Removal & Installation Tool Kit
106-08.1.L	Inspect IMS for runout, recondition, pin sprocket, and install bearing
106-08.13.5	IMS Pro Tool Kit Hex Adapter for LN Bearing
106-08.13.1.SET	IMS Pro Tool Kit Threaded Rod including nut and thrust washer
106-08.20.CLIP	Replacement Single Row IMS Circlip Snap Ring
106-08.21.1-D	IMS Solution Spin On Oil Filter Adapter Installation Tool
106-08.22.3	Faultless IMS Tool Tapered Sleeve
106-08.22.7	Faultless IMS Tool Thrust Bearing
106-08.IMSSSPARES	IMS Solution O-Ring and Spares Kit
106-08.IMSRORINGS	IMS Retrofit O-Ring Kit



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M96/M97 Upgrades

Increased sump capacity coupled with anti-slosh tray and X51 baffle reduces engine failures from loss of lubrication.



2 QUART DEEP SUMP KIT



A must when rebuilding any 1997 - 2008 M96 or M97 engine to prevent rod bolt failures.

ARP ROD BOLT KIT



Power increase due to lower friction. Engine protection during start-ups and oil starvation.

COATED MAIN & ROD BEARINGS



High performance 4340 chromoly Steel and ARP rod bolts prevent rod failures.

FORGED CONNECTING RODS



Stronger by design, LN Engineering's Billet Aluminum Paddle also utilizes an upgraded, steel pressure pin.

LN BILLET TENSIONER PADDLE



Custom Multi-Layered Steel head gaskets for larger than original bore sizes.

CUSTOM MLS HEAD GASKETS



Designed to be fully open 20-25 F earlier than OEM, this thermostat maximizes cooling system potential.

LOW TEMP THERMOSTAT



M96/M97 Upgrades



Stronger than factory ones, ARP bolts prevent shuffling and fretting of the main bearing saddles.

ARP CARRIER THROUGH BOLTS



Pro Series, Chromoly head stud kit. Provides 40% more tensile strength than OEM Torque-To-Yield studs.

ARP HEAD STUD KIT



Make sure engine oil stays around the main oil pickup at all times - during braking, acceleration and in fast turns

X51 OIL PAN BAFFLE KIT



Exclusive full-flow adapter allows for use of a conventional spin on oil filter for superior filtration.

SPIN-ON OIL FILTER ADAPTER



Protect your engine's oil pan from damage on street and track when using a deep sump.

OIL PAN GUARD PLATE



A heat treated, shot-peened, chromoly hex oil pump drive prevents loss of oil pressure.

CHROMOLY OIL PUMP DRIVE



Reduce a primary source of wear in your engine - iron levels in oil - with up to 14 lbs. of magnetic pull!

MAGNETIC DRAIN PLUG



**TAPERED SLEEVE
RING COMPRESSOR**



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Upgrades

106-00	Bilt Racing .5QT Deep Sump Oil Pan Kit
106-00.1	Bilt Racing 2QT Deep Sump Oil Pan Kit
106-00.16	FSI Stage II 2QT Deep Sump Oil Pan Kit
106-00.16-UPGRADE	FSI Stage II 2QT Deep Sump Oil Pan Baffle Upgrade Kit <i>(For Existing BRS 2QT 106-00.1 Sump Kit)</i>
106-00.6	X51 Oil Pan Baffle Kit
106-00.7	X51 Oil Pan Baffle Kit for .5 Quart Deep Sump
106-00.8	Bilt Racing Boxster/Cayman 2 Quart Deep Sump Stainless Steel Guard Plate <i>(No Free Shipping)</i>
106-00.9	Bilt Racing 911 2 Quart Deep Sump Stainless Steel Guard Plate <i>(No Free Shipping)</i>
106-00.14	FSI Stage I Billet .5 QT Finned Deep Sump Kit
106-01	Spin-on Oil Filter Adapter <i>(Also fits 2003-2006 Porsche Cayenne V8 Models)</i>
106-01.1	Replacement Oil Filter for Spin-On Oil Filter Adapter <i>(Not for IMS Solution)</i>
106-01.2	Replacement Oil Filter for IMS Solution / 9A1 Spin-On Oil Filter Adapter
106-06.1	160F Low Temperature Thermostat, insert only. Use tool 106-06.2 to remove/install.
106-06.2	Thermostat Installation/Removal Tool
106-10	Billet IMS to Crankshaft Tensioner Paddle
106-11	Chromoly Oil Pump Hex Drive
106-22	Bilt Racing M96/M97 Oil Cooler Delete without coolant in/out ports. For installing external oil cooler.
106-29.2	M96/M97 Boxster Cayman 911 Flywheel Lock Tool 00072195381 9538/1
106-29.5	Porsche M96/M97 Piston Deck Height Tool Deck Bridge 85.5mm-101mm
106-29.6	Porsche M96/M97 Engine Console IMS Holder Tool
106-33	Bilt Racing M96/M97 Oil Cooler Delete with coolant in/out ports. For installing external oil cooler.



Upgrades

106-35A	LN Engineering Billet 4.650" Tall High Performance Washable Engine Oil Filter (3.4" dia; 3/4-16 thread)
106-35B	LN Engineering Billet 4.650" Tall High Performance Washable Engine Oil Filter (3.4" dia; 13/16-16 thread)
99610703552LN	Billet Aluminum M96/M97 Engine Oil Fill Cap. Replaces 99610703552.
99610644704LN	Billet Aluminum Boxster Cayman 911 Coolant Expansion Tank Cap. Replaces 99610644704.
99620124103LN	99620124103LN Billet Aluminum Sport Gas Fuel Cap. Replaces 99620124103.
94810702200LN	94810702200LN Billet Oil Filter Housing Cap inc. Soft Socket
99610728570LN	99610728570LN Billet Oil Filter Housing Cap inc. Soft Socket
120-03	BRS Motorsports AOS Adapter (to fit 3 chain Motorsports AOS onto 5 chain engine)
99610211563LN	Flat 6 Innovations Billet Aluminum Hard Anodized M96/M97 Underdrive Crankshaft Pulley
99610211563LN-NT	Flat 6 Innovations Billet Aluminum Hard Anodized M96/M97 Underdrive Crankshaft Pulley w/o install tool
99610121652LN	Flat 6 Innovations Billet M96/M97 Engine Case Coolant Cover Plate with 1/8 NPT Sensor Ports
996.107.020.55LN	Billet M96/M97 Boxster Cayman 911 Oil Filter Housing w/ Magnet (with bypass valve)
996.107.020.55LN.N B	Billet M96/M97 Boxster Cayman 911 Oil Filter Housing w/ Magnet (no bypass valve)
996-110-120-53-LN-CAP	Porsche Resonance Tube Vacuum Leak Repair Kit
997-101-021-00-LN	LN Engineering Billet Aluminum Alternator Mount / Coolant Plate for M96/M97 Boxster Cayman 911
0PB.105.249.LN	M96/M97 Rear Main Seal Tool
9699-1	M96/M97 9699-1 Crankshaft Go No Go Gauge Inspection Rear Main Checker Tool
106-35A	LN Engineering Billet 4.650" Tall High Performance Washable Engine Oil Filter (3.4" dia; 3/4-16 thread)
106-35B	LN Engineering Billet 4.650" Tall High Performance Washable Engine Oil Filter (3.4" dia; 13/16-16 thread)
99610703552LN	Billet Aluminum M96/M97 Engine Oil Fill Cap. Replaces 99610703552.
99610644704LN	Billet Aluminum Boxster Cayman 911 Coolant Expansion Tank Cap. Replaces 99610644704.



Forged Connecting Rods

The stock powder metal “cracked cap” rods commonly suffer beam and rod bolt failures.

If you increasing engine displacement or plan on tracking your car, upgrading your rods is required.





Forged Connecting Rods

400-986	Porsche Boxster, 911 K1/Boostline Forged (986, 996 & 987; 2.5-3.4), replaces pn# 99610397501
400-986.CP	Porsche Boxster, 911 LN Spec Carrillo (986, 996 & 987; 2.5-3.4), replaces pn# 99610397501
400-986-SPC	PCA Club Racing Spec Carrillo Connecting Rod Set 2.5-3.4, replaces pn# 99610397501
400-997	Porsche 911 LN Spec K1/Boostline Forged (996 & 997; 3.6 and 3.8), replaces pn# 99610398500, 01, 02
400-997.CP	Porsche 911 LN Spec Carrillo (996 & 997; 3.6 and 3.8), replaces pn# 99610398500, 01, 02



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Custom M96/M97 Head Gaskets

When increasing bore sizes or after resurfacing your engine block deck, a custom head gasket is required.

We offer custom head gaskets for larger bores sizes and in the correct thickness depending on how much is removed from your deck during resurfacing.





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M96/M97 Head Gaskets

106-09.1	Custom 89mm head gasket set for 2.5/2.7 (5-Chain Engines; sold as a pair)
106-09.2	Custom 89mm head gasket set for 2.5/2.7 (3-Chain Engines; sold as a pair)
106-09.3/101	Custom .032" thick 101mm Head Gasket Set for 3.2/3.4/3.6/3.8 (5- or 3- Chain Engines; sold as a pair)
106-09.3/101T	Custom .040" thick 101mm Head Gasket Set for 3.2/3.4/3.6/3.8 (5- or 3- Chain Engines; sold as a pair)
106-09.3/101RT	Custom .060" thick 101mm Head Gasket Set for 3.2/3.4/3.6/3.8 (5- or 3- Chain Engines; sold as a pair)
106-09.4/102	Custom .032" thick 102mm Head Gasket Set for 3.8 (3- Chain Engines; sold as a pair)
106-09.4/102T	Custom .040" thick 102mm Head Gasket Set for 3.8 (3- Chain Engines; sold as a pair)
106-09.4/102RT	Custom .060" thick 102mm Head Gasket Set for 3.8 (3- Chain Engines; sold as a pair)



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Coated Main and Rod Bearings

Our coated Genuine Porsche and OEM bearings feature the Calico Dry Film Lubricant or WPC coatings.

This helps reduce friction and abrasive wear, providing intermittent dry lubrication for all Porsche engines, especially those that may see track use.



Metal Surface Treatment



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WPC Treatment

WPC is an anti-friction micro shot-peening treatment to the surface of the (any) part.

The peaks and valleys scoop up oil and increase the surface hardness of the material.

Due to the fact there is virtually no dimension change, we can add the treatment to already finished parts.

Engine main and rod bearings can be special ordered with WPC.





Coated Main and Rod Bearings

99610120510C	Coated Performance Main Bearings Porsche Boxster 2.7 3.2 911 3.4 to 2001 M96 M97 (Set of 14)
99610120904C	Coated Performance Main Bearings Porsche 911 3.6 3.8 Boxster Cayman 3.4 (06-08) M96 M97 (Set of 14)
99610312162C	Coated Performance Rod Bearings 97-08 Porsche M96 M97 2.5-3.8 Boxster Cayman 911 (Qty 12 Req.)



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ARP Engine Hardware

Replacing the TTY cylinder head studs, crankshaft carrier bolts, and stock connecting rod bolts in your Porsche Boxster, Cayman, or 911's M96 or M97 engine with fasteners from ARP is recommended.





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ARP Engine Hardware

204-4707	ARP M96/M97 Head Stud Kit 97-08 Porsche Boxster, Cayman, 911
204-5001	ARP M96/M97 Carrier Through Bolt Kit Porsche Boxster, Cayman, 911 (was 106-23)
204-6301	ARP M96/M97 Rod Bolts for Stock Porsche Boxster, Cayman, 911 Connecting Rods (was 106-15)



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The Knowledge Gruppe

**Jake Raby's Focus On:
M9X Engine Assembly
DVDs, engine workbook,
and torque spec books
provide everything you
need to rebuilding an M96
or M97 engine.**





The Knowledge Gruppe

TKG-M9X-EA	Rennvision's FOCUS ON: M9X Engine Assembly DVD
978-0-9849077-2-4	"996 Torque Book" – Fastening Specifications for Porsche 911 (Type 996) Automobile
978-0-9849077-1-7	"997 Torque Book" – Fastening Specifications for Porsche 911 (Type 997) Automobile
TKG-M9X-WB	Rennvision's FOCUS ON: M9X Engine Assembly Workbook



Tapered Sleeve Ring Compressors

Modern piston rings require a modern approach to piston installation.

Tapered sleeve ring compressors reduce the chances of bending or breaking a piston ring during installation.

Available in all bore sizes.





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Ring Gapping Service

Our piston ring end gapping service provides you with piston rings with pre-set end gaps.

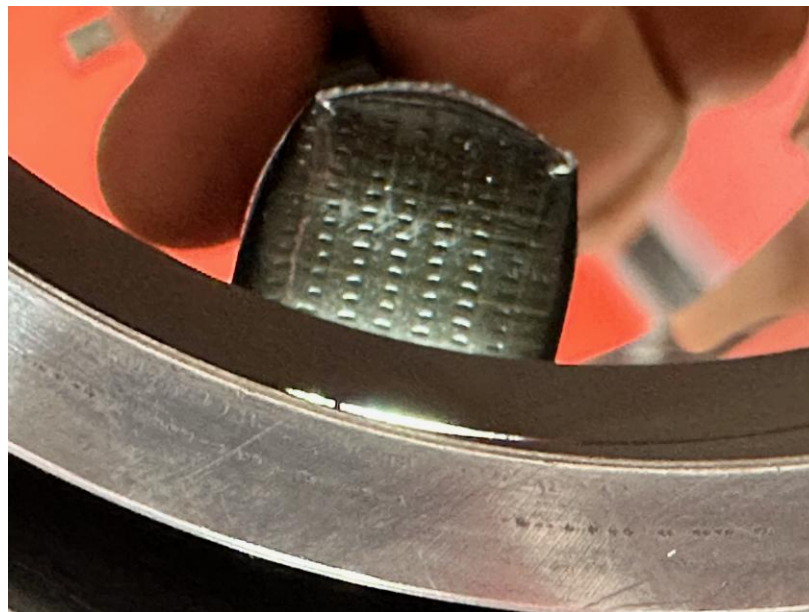




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Light Checking

Piston rings should be round. If they are not round, they won't function properly. When gapping rings, we can also light check them for you.





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Piston and Rod Balancing Service

Our balancing service provides piston assemblies and connecting rods balanced within +/- 0.5 grams.





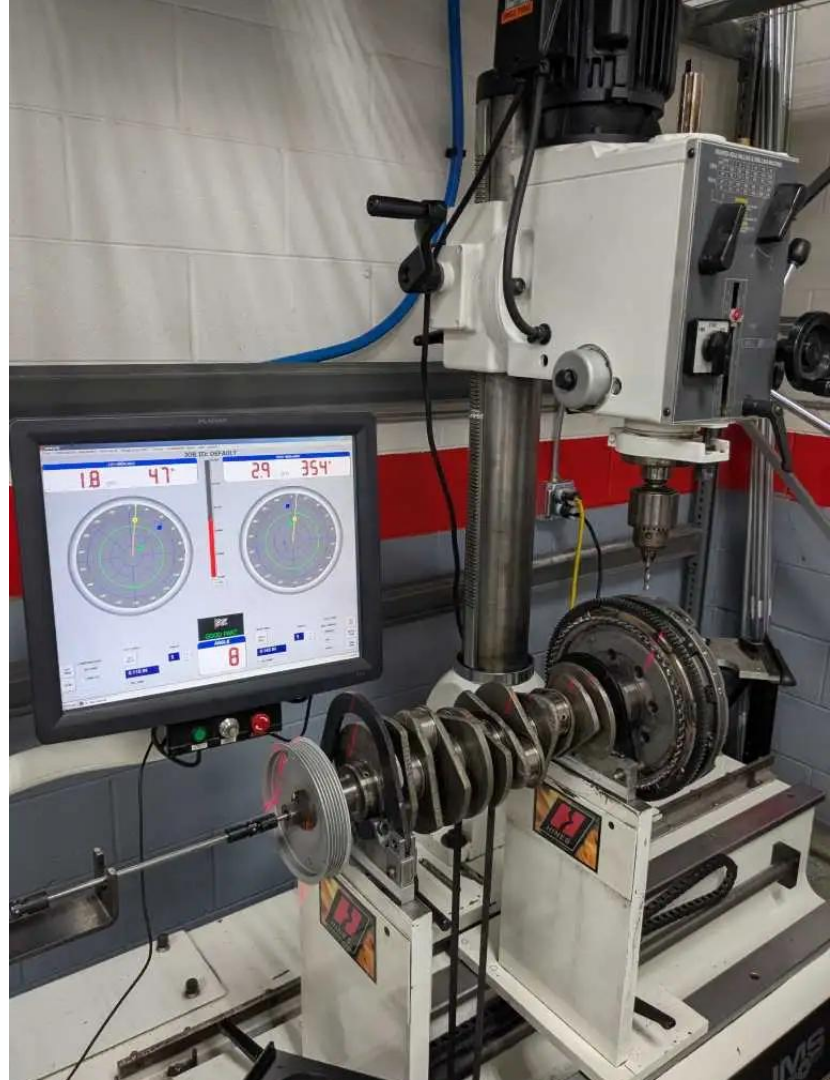
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Dynamic Balancing

**We now offer
Dynamic Engine
Balancing.**

**Standard balance
specification is 0.5
oz/in.**

**Race balance is to
0.2 oz/in.**



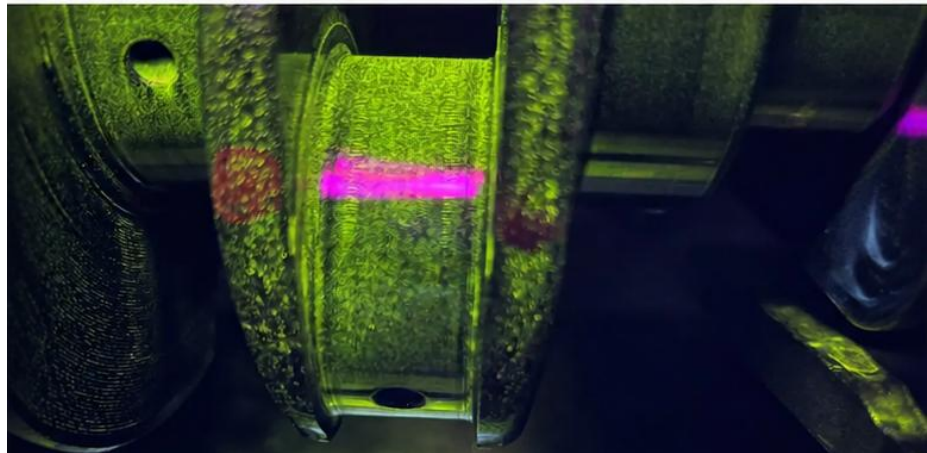


PRECISION PERFORMANCE
SINCE 2008

Crankshaft

Magnetic particle inspection ensures crankshafts are not cracked.

Surface finish influences oil film stability, load capacity, and bearing longevity. LN Engineering polishes journals to achieve a consistent, controlled finish that supports long-term reliability.





Cylinder Head Reconditioning

100% of components are tested, reconditioned, or replaced and feature multi-angle Serdi valve job, Viton valve stem seals, and critical surfaces are diamond milled, exceeding original manufacturer specifications.

All components are inspected and replaced if worn.

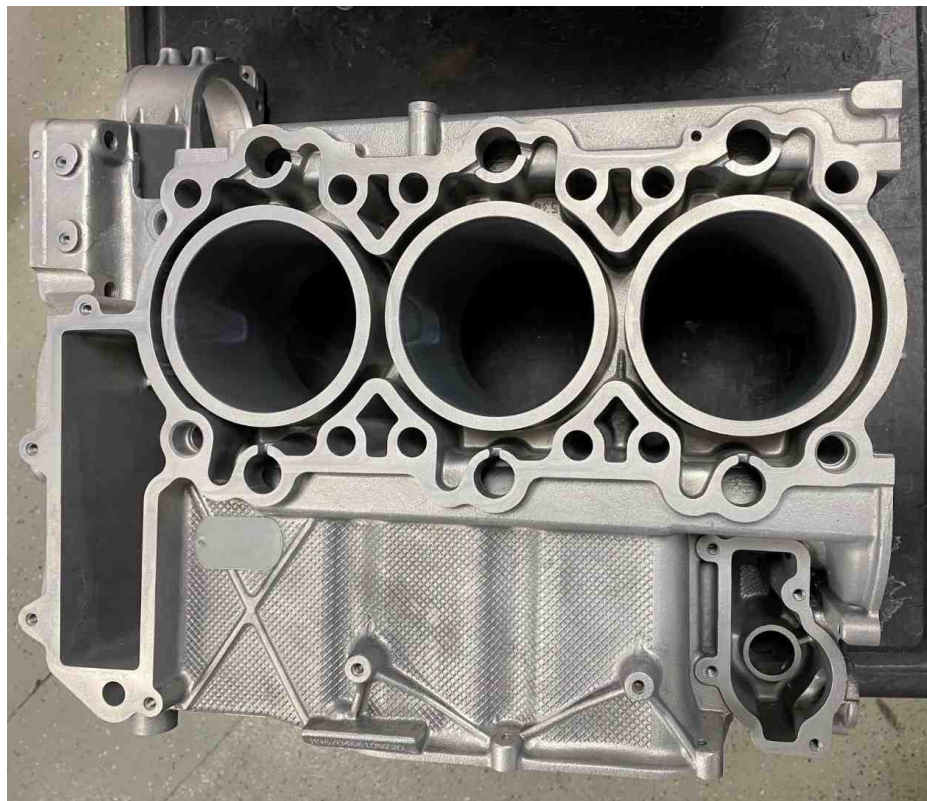




PRECISION PERFORMANCE
SINCE 2008

Vapor Blasting

Our optional vapor blasting process removes years of built-up contamination off your engine block's exterior.



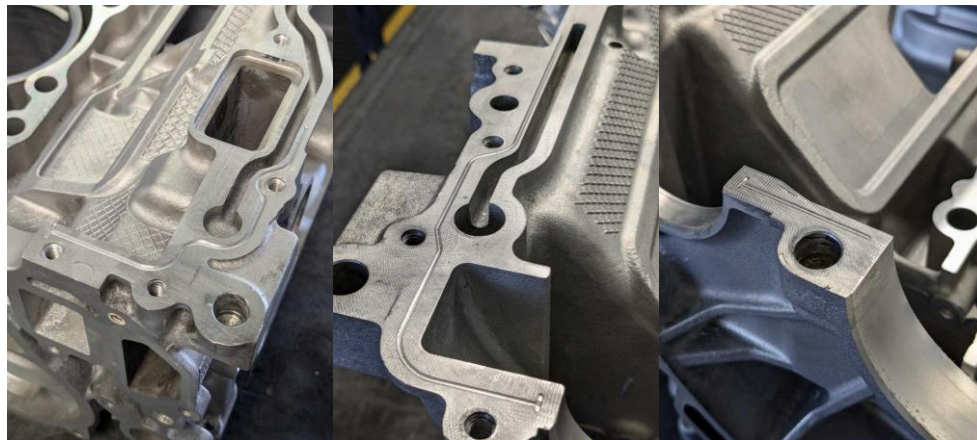


PRECISION PERFORMANCE
SINCE 2002

Block Grooving

Porsche M96/M97 engines can be troublesome when it comes to leaks. We machine grooves to hold extra sealant in leak-prone areas to improve sealing.

Once available exclusively for Flat 6 Innovations customers, LN Engineering now offers this grooving service for all 97-08 Boxster, Cayman, and 911 996 and 997 engine blocks as part of our Nickies sleeving process.





PRECISION PERFORMANCE
SINCE 2008

Cryogenic Treatment

The advanced process of Deep Cryogenic Processing involves bringing the temperature of materials down to temperatures below -300°F slowly.

Optional Cryogenic Processing alters the crystalline structure, transforming it into a more uniform and durable construct.

These changes become permanent as the temperature of the material is gradually brought back up to room temperature or beyond.





WPC Treatment

WPC is an anti-friction micro shot-peening treatment to the surface of the (any) part.

The peaks and valleys scoop up oil and increase the surface hardness of the material.

Due to the fact there is virtually no dimension change, we can add the treatment to already finished parts.

Engine main and rod bearings can be special ordered with WPC.





PRECISION PERFORMANCE
SINCE 2008

Additional Services

LN Engineering's automotive machine shop offers services like cylinder reconditioning, honing, aluminum engine block repair and sleeving, connecting rod reconditioning, crankshaft polishing, engine balancing, cylinder head remanufacturing, surface grinding and more.



Scan QR code for the most up to date [list of machine shop services offered](#)





PRECISION PERFORMANCE
SINCE 2008

Engine Rebuilds

LN Engineering is the exclusive distributor for Flat 6 Innovations Rebuilt Porsche engines.

Now accepting customer supplied engines for rebuild from anywhere in the world.



6 FLAT SIX
INNOVATIONS

Often imitated. **Never duplicated.**

Flat 6 Innovations Engines feature LN Engineering Nickies and IMS Solution.

NICKIES **IMS SOLUTION**

FLAT6INNOVATIONS.COM

The advertisement features three Porsche flat-six engines against a black background. The central engine is painted bright red, while the two flanking engines are silver. The text is in white and red, with the slogan 'Often imitated. Never duplicated.' in a bold, sans-serif font. At the bottom, there are logos for 'NICKIES' and 'IMS SOLUTION' and the website 'FLAT6INNOVATIONS.COM'.



PRECISION PERFORMANCE
SINCE 2008

Shipping

Easy and secure shipping with trusted UPS and other freight partners minimizes time in transit which means less time waiting for your shipment with discounted rates that save you money.

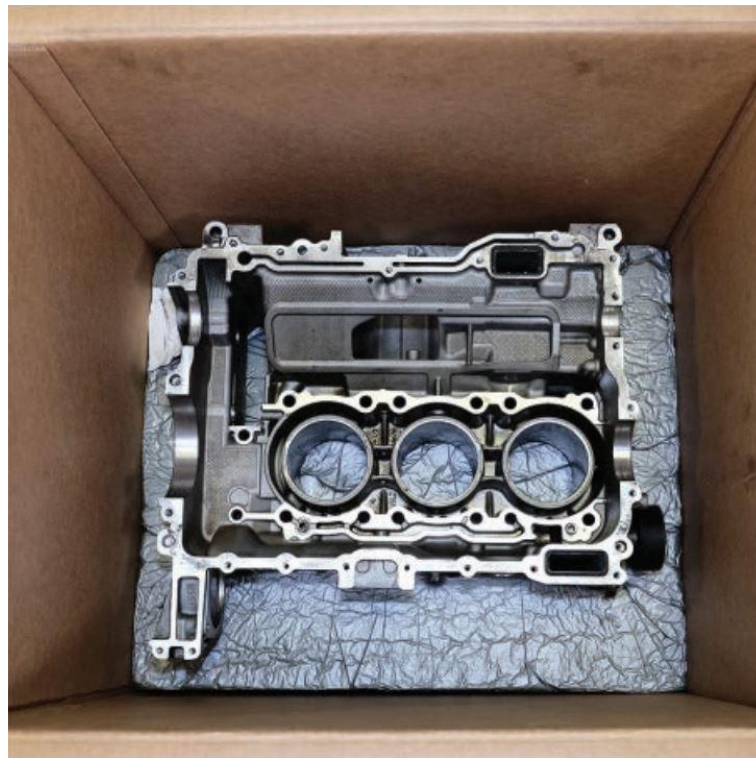




Pre-Paid Shipping (US Only)

We make shipping easy. Pay one flat rate and we ship you a custom box to safely ship your block to us with our pre-paid shipping label.

Price includes return shipping for your entire order!





PRECISION PERFORMANCE SINCE 1908



LN ENGINEERING
KNOWLEDGE

Technical Resources for Porsche Owners

Guides, videos, downloads, AI-powered tools, and **enhanced 24/7 support.**

[Learn More >](#)



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AI-Powered Tools



ENHANCED 24/7 SUPPORT
Porsche experts, always here.



SOLUTIONS ▾

KNOWLEDGE

SUPPORT 24/7



Knowledge

Technical Resources for Porsche Owners

LN Engineering provides educational resources, training, and guidelines to help you get the most from your aircooled Porsche. Our resources are built by engineers, for enthusiasts—plus, enjoy **enhanced 24/7 support.**



[What is the best oil for my Porsche?](#)



[Porsche Engine Technical Videos](#)



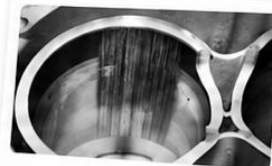
[Technical Downloads for Porsche Owners](#)



[The Definitive Guide to the Porsche IMS Bearing](#)



[The Ultimate Guide to Nikasil and NSC Cylinder Platings](#)



[The Porsche Cylinder Bore Scoring Problem](#)



Contact Details



PRECISION PERFORMANCE
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