



PRECISION PERFORMANCE
SINCE 2008

LN Engineering Performance & Reliability Solutions

for Porsche Boxster, Cayman, and 911 Models



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 our manufacturing at our 17,000 sq/ft facility, located one hour south of Chicago in Momence, IL.

Proudly Made in the USA on HAAS CNC equipment.





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Quality

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





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Our Partners

**Bilt Racing Service,
acquired by LN in late
2017, has developed
proven performance and
reliability solutions for
both street and track for
Porsche Boxster, Cayman,
and 911 models up to the
newest 718 and 992
models.**



**PROVEN PERFORMANCE
FOR STREET AND TRACK**



DEEP SUMP KITS



BILLET 9A1 DEEP AND 9A2 SUMPS



ENGINE AND TRANS COOLING

**CHECK OUT ALL OUR PERFORMANCE
AND RELIABILITY SOLUTIONS**

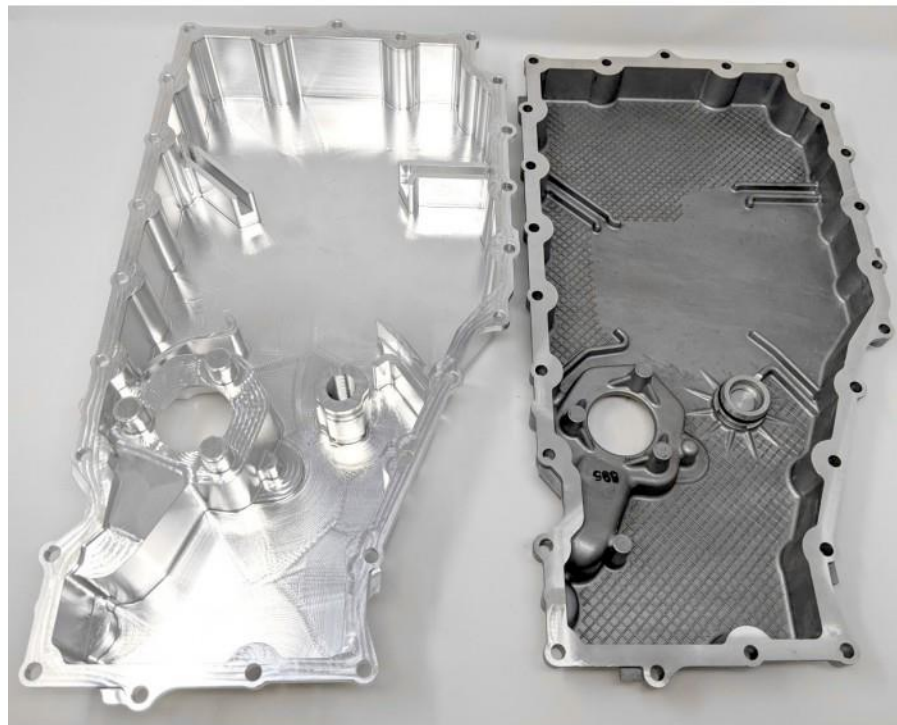




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Design

LN Engineering and Bilt Racing Service parts are engineered and manufactured as direct replacements for OEM components, delivering precision performance for Porsche engines meeting or exceeding OEM requirements.





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Shipping

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





Why LN Engineering?

LN Engineering is one of the most trusted names in the Porsche aftermarket and is the leading authority on M96/M97 engines.

Bilt Racing Service's years of track experience provides extensive knowledge about the 2009 and later MA1 and MA2 engines found in our upgrades for street and track.



M96/M97

- **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.**
- **Significantly elevated temperatures can shorten lubricant and component life.**
- **AOS and power steering issues must be addressed.**

MA1/MA2

- **Porsche Boxster, Cayman, and 911 engines from 2009 and up feature a completely new engine design that is completely different than the problematic M96/M97 engine.**
- **Although still not dry sump, these oil systems were significantly improved, eliminating oil starvation issues.**
- **Adding supplemental cooling the engine and gearbox is a must.**



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M96/M97 Deep Sumps

97-08 models when tracked can suffer catastrophic failures due to oil starvation.

Our .5 QT deep sump is recommended for all street cars; the 2 QT version is a must for the track.

Billet sump plates and guards also available.



brs
Bilt Racing Service

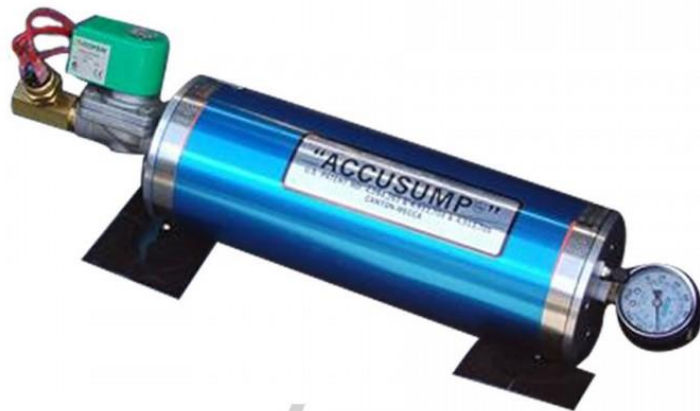


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Accusump

Oil accumulators have been used to resolve oil starvation on wet sump engines for decades.

Our universal Accusump kit features easy installation using our spin on oil filter adapter for M96/M97 engines with single line installation.



bcs
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M96/M97 Deep Sumps

106-00	Bilt Racing .5QT Deep Sump Oil Pan Kit
106-00.1	Bilt Racing 2QT Deep Sump Oil Pan Kit (Includes X51 Oil Pan Baffle)
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
106-00.9	Bilt Racing 911 2 Quart Deep Sump Stainless Steel Guard Plate
106-00.14	Bilt Racing .5QT Billet Finned Deep Sump
106-12.1	Bilt Racing HPDE 2 Quart Accusump Universal Kit



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9A1/MA1 Deep Sumps

Our 2.5 quart billet deep sump pan for MY09-16 987.2, 997.2, 981, and 991 models with the 9A1/MA1 engine provides a significant increase in total oil volume.

Customers have reported up to a 4.5 degree C reduction in oil temperatures on track.





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9A2/MA2 Deep Sumps

Porsche 991.2 models come from the factory with a weak and poor cooling plastic oil pan with ¼ turn drain plug.

Our 2.5 quart billet deep sump provides added volume, cooling, strength. Includes stainless oil baffles and dual magnetic drain plugs for faster oil changes.



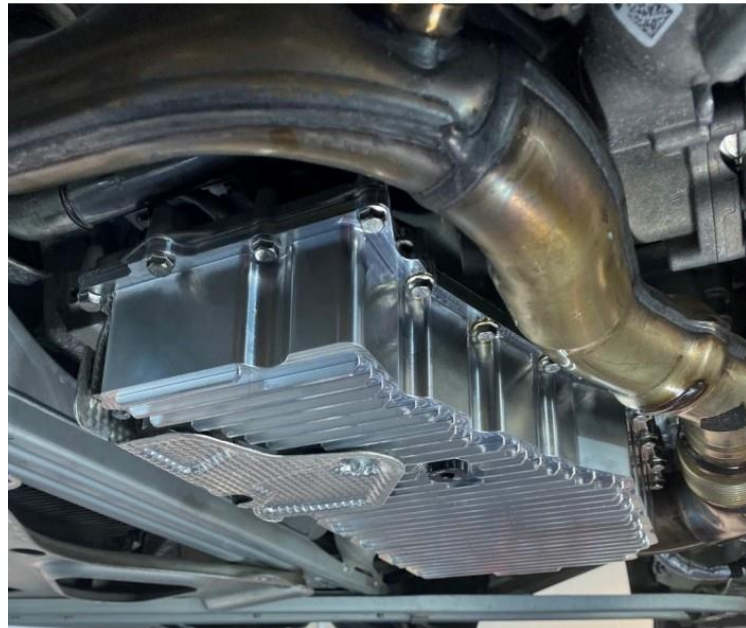


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Deep Sumps for 718 Models

Porsche's newest four cylinder turbocharged engine provides excellent performance. However when tracked, many report their cars going into limp mode due to thermal protection.

Our 2 quart billet deep sump adds more volume to help keep oil temps in check.





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Deep Sumps for 718 Models

**718 GTS/GT4/Boxster
Spyder models with the 4.0
liter engine (with plastic
sump pan 9A2 107 309 00)
use part number 106-00.12
designed for the 9A2.**

**All our deep sumps include
an oil pickup extension and
on-dash oil level reporting is
preserved.**





MA1/MA2/718 Deep Sumps

106-00.5	BRS 2.5QT Deep Sump Oil Pan Kit (BRS# 120-00) 2009-2016 models with 9A1 Engine
106-00.12	Bilt Racing Service BRS Billet 2.5 QT 9A2 Deep Sump Oil Pan Kit for 991.2 Models; Replaces 9A210730900.
106-00.13	Bilt Racing Service BRS Billet 2 QT Deep Sump Oil Pan Kit for 718 Models
106-00.11	Bilt Racing Service BRS 981 Cayman Boxster Stainless Steel Sump Guard Plate



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Magnetic Drain Plug

Our billet magnetic stainless steel and aluminum engine and transmission drain plugs allow for easy inspection to monitor for wear debris.





Magnetic Drain Plugs

106-07	Billet Al Hard Anodized Magnetic Drain Plug for Boxster, Cayman, 911, Panamera, and Cayenne Models
99730180700LN	Billet Aluminum Hard Anodized Magnetic Transmission Drain Plug for 05-12 Porsche 911 6-Speed
106-07.4	LN Engineering Billet Stainless Steel Magnetic Drain Plug for 14-19 GT3, GT3RS, R models (16 x 1.5)
N91167901LN	N91167901LN Billet Stainless Magnetic Drain Plug for VW Audi Porsche Engines
N91059701LN	LN Engineering Billet Stainless Steel Porsche/VW/Audi Manual Trans Drain Magnetic Drain Plug (22 x 1.5)
WHT001937LN	LN Engineering Billet Stainless Steel Porsche/VW/Audi Magnetic Trans Drain Plug (24 x 1.5). Replaces 999-064-020-02
9G132180500LN	LN Engineering Billet Aluminum PDK Magnetic Transmission Plug with Seal (18 x 1.5)

Our magnetic drain plugs are available for additional makes and models.



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Spin On Oil Filter Adapter

M96 engines can generate significant wear debris.

Our 106-01 spin on oil filter adapter provides full-flow filtration and eliminates the filter bypass on 97-08 models to prevent debris from re-entering the engine.





Spin On Oil Filter Adapter

Our [Spin On Oil Filter Adapters](#) retain make oil changes a breeze.

We recommend adding a **FilterMag** to capture ferrous particles in your oil.

Now available for 987.2, 981, and 718 models.





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What is a Filtermag?

Engine wear creates particles small enough to pass through conventional oil filters. These circulating particles create the most wear.

FilterMag captures these particles to prevent them from continuing to circulate in engine oil.





Spin On Oil Filter Adapters

106-01	Spin-on Full-Flow Oil Filter Adapter for 97-08 Boxster, Cayman, and 911 Models (not for GT3, Turbo, or GT2)
106-01.1	Replacement Oil Filter for Spin-On Oil Filter Adapter (Not for IMS Solution)
106-01.2	Replacement Oil Filter for IMS Solution / 9A1 Spin-On Oil Filter Adapter
106-01.3	Spin-on Oil Filter Adapter for MY09 and later 9A1 engines; Boxster/Cayman Models Only
106-01.5	Spin-on Oil Filter Adapter for 718 Boxster/Cayman Models
106-01.6	Replacement Oil Filter for 718 Spin-On Oil Filter Adapter
106-01.8	FilterMAG SS300 for 2.9-3.4" OD Filters



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Motorsports AOS

The stock air oil separator is insufficient for 97-08 Boxster, Cayman, and 911 engines.

Upgrading to a Motorsports AOS solves these issues.

Installations on 97-02 Boxster and 99-01 911 (996) models require the LN Motorsports AOS adapter.





AOS

120-03	BRS Motorsports AOS Adapter (to fit 3-chain Motorsports AOS onto 5-chain engine)
NW-996-RED	Notta Wrench 986/996 Air Oil Separator Line Release Tool
NW-997-TAN	Notta Wrench 987/997 Air Oil Separator Line Release Tool
996-107-926-00	Porsche Motorsports AOS (Requires bolt 900-067-316-01 x 2; modifications required for installation)



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Billet Caps

Enhance the appearance of your Porsche with our selection of billet aluminum oil fill, oil filter, gas, and coolant expansion tank caps from LN Engineering.

Billet filter housing include a magnet to catch ferrous debris.





Billet Caps

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



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Low Temperature Thermostat

Modern engines run hot.

The factory M96 thermostat doesn't open fully until about 100C.

Upgrading to a 71C thermostat allows the thermostat to fully open by 85C to maximize cooling system efficiency.





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Low Temperature Thermostat

106-06.1	160F Low Temperature Thermostat, insert only. Use tool 106-06.2 to remove/install.
106-06.2	M96/M97 Thermostat Installation/Removal Tool
106-06.6	160F Low Temperature Thermostat for 2009-2012 MA1/9A1 Engines (Not recommended for street use)



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Oil Coolers

Factory Boxster, Cayman, and 911 engines typically run 100C+ higher oil temperatures than ambient air temps when tracked.

Adding a larger engine oil heat exchanger can reduce oil temperatures when coupled with a low temp thermostat, deep sump, and CSF radiators.





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Oil Coolers

106-22	Bilt Racing M96/M97 Oil Cooler Delete. For installing external oil cooler.
118-00-KIT	Bilt Racing Service BRS XL Oil to Water Heat Exchanger Kit - Universal Oil Cooler
118-05	9A1 Oversized Engine Oil Cooler 981 Cayman Boxster 997.2 991 911
118-05-KIT	9A1 Oversized Engine Oil Cooler & Power Steering Bypass MY09-12 Cayman Boxster; 119-02 also required.
119-02	BRS Power Steering Cooler (Fits MY97-12 Boxster, Cayman, and 911 models)
120-04	Bilt Racing Service BRS 9A1 Oil Cooler Delete Adapter Kit MY09-12 Cayman Boxster 911
106-30	BRS Cayman/Boxster 987.1 6-Speed Engine Oil Cooler Kit



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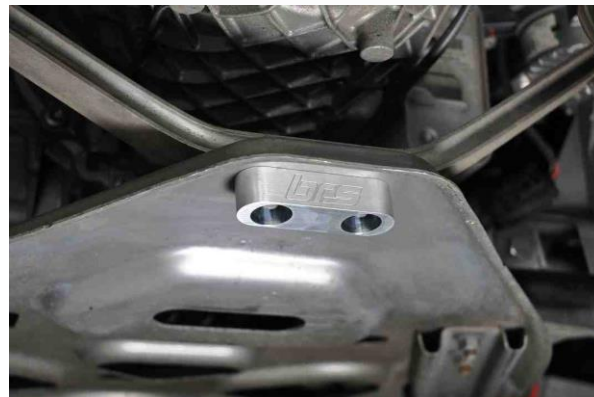


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Jack Points & Mounts

Our billet jack mount is a simple bolt on solution for lifting the rear of Boxster & Cayman models.

Replace rubber or active mounts found in 986 through 981 models with a full solid setup to minimize drivetrain movement and flex.





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Jack Points & Mounts

116-20	BRS Billet 987 Jack Point
116-21	BRS Billet 981 Jack Point
117-06	BRS Billet Motorsports 987/981 Solid Transmission Mounts (Sold as Pair)
120-01	BRS Billet 981 Motorsports Semi-Solid Engine Mount Insert



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Power Steering

On track power steering pump failures on 97-08 Porsche models due to high fluid temperatures are common. Our plug and play cooler kit solves these issues.

Upgrading to electric power steering reduces parasitic losses on 97-12 race cars.





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Power Steering

When installing our oversized oil cooler 118-05-KIT for 2009-2012 Boxster and Cayman models, the new cooler eliminates the factory power steering cooler which is part of the stock engine oil cooler.

Installation of a separate air to oil power steering cooler (119-02) is required.





Power Steering

119-00	BRS Electric Power Steering Kit; For Gen 2 997.2/987.2 Porsche Boxster, Cayman, 911 w/o A/C
119-00.3	BRS Electric Power Steering Pump. New, Made in France. With Integral Reservoir (Pump Only)
119-01	BRS Electric Power Steering Kit; For Gen 1 MY97-08 Porsche Boxster, Cayman, 911 (w/o AC)
119-01.AC	BRS Electric Power Steering Kit; For Gen 1 MY97-08 Porsche Boxster, Cayman, 911 (w/ AC)
119-02	BRS Power Steering Cooler (Fits MY97-12 Boxster, Cayman, and 911 models)
119-02.3	BRS Power Steering Cooler Bypass Loop MY09-12 Cayman Boxster
119-03	Bilt Racing Service BRS Billet Rack Stops MY06-12 Boxster, Cayman, & 911 Models, Pair.



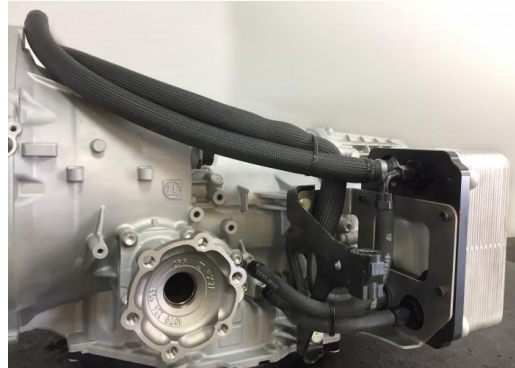
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PDK

Bilt Racing Service's extensive experience with Porsche's PDK transmission in track service has shown that frequent fluid and filter changes along with supplemental cooling is the key to longevity for the PDK.

Our billet PDK pan with serviceable filter and coolers are a must for the track.





PDK

**Repair your 7DT45 and 7DT70
Porsche PDK transmission.**

**The distance / position
sensor failure is indicated by
1731-1735 and other 17xx
errors.**

**Previously this kind of error
required a new and very
expensive PDK transmission,
but now you can just replace
the faulty gear position
sensor.**





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PDK

117-06	BRS Billet Motorsports 987/981 Solid Transmission Mounts
117-07	BRS PDK 15mm Axle Spacer Kit
117-08	BRS 987 Boxster/Cayman PDK Cooler Side Mount Kit
117-08.2	BRS 981 Boxster/Cayman PDK Cooler Side Mount Kit
117-10	BRS Billet PDK Transmission Pan
117-10.1	BRS Billet PDK Transmission Pan Service Kit
117-11	BRS Cayman/Boxster 987.2 PDK Transmission Gear Oil Cooler Kit
0501325775KX	7DT45 Shift Fork Position Sensor Unit for Porsche PDK Gearbox



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Manual

Just like our bolt on PDK cooling solutions, Bilt Racing Service now offers a plug and play gear cooler for 987.1 Boxster and Cayman models.

Pair with our Boxster/Cayman engine oil cooler, low temperature thermostat, and CSF Radiators for maximum cooling for the track.





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Manual

117-12

BRS Cayman/Boxster 987.1 6-Speed Transmission Gear Oil Cooler Kit



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Driven Oils

For street cars, LN Engineering recommends [Driven](#) DT40 for engines requiring an A40 oil and DI40 for direct injected engines, including those requiring a C40 oil.

Driven's XP9 race oil is the only oil we recommend for the track.

Driven DCT provides improve shear stability over factory PDK oil fill.

Driven Go 75w90 LS is recommended anywhere a GL-5 is required.



BRS

Bilt Racing Service offers performance and reliability solutions for Porsche Boxster, Cayman, and 911 models.





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BRS

106-23	Bilt Racing M96 RoW Secondary Air Injection (SAI) Block-off Plates 97-05 Boxster and 911 (996)
106-23.1	Bilt Racing M97 RoW Secondary Air Injection (SAI) Block-off Plates 05-08 911 (997), 06-08 Boxster & Cayman
121-06	Bilt Racing Service BRS Billet E-Gas Pedal Spacer For Boxster, Cayman, 911 MY00-20

bRS
Bilt Racing Service



Flat 6 Innovations

Flat 6 Innovations was founded in the early 2000s to support the development of upgrades for and specialized repair of Porsche M96/M97 engines found in 1997 through 2008 Porsche Boxster, Cayman and 996/997 series vehicles.





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Flat 6 Innovations

99610211563LN	Flat 6 Innovations Billet Aluminum Hard Anodized M96/M97 Underdrive Crankshaft Pulley
99610121652LN	Flat 6 Innovations Billet M96/M97 Engine Case Coolant Cover Plate with 1/8 NPT Sensor Ports





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Free Technical Resources

Click on education on the LN Engineering home page for [free technical information](#).

Be sure to check out and subscribe to the [LN Engineering YouTube channel](#).



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TECHNICAL
LIBRARY



TRACKING YOUR CAR
AND THE M96 ENGINE



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Contact Details



PRECISION PERFORMANCE
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Headquarters

LN Engineering
125 Gladiolus St.
Momence, IL 60954
USA

+1 (815) 472-2939

support@lnengineering.com

<https://www.LNEngineering.com>

Exclusive EU Distributor



CUSTOM CONCEPTS

Oude Baan 6
4825 BL Breda
The Netherlands

+31(0)6 2275 6519

info@custom-concepts.nl

<https://custom-concepts.nl/>