

Lycoming Flyer

FREQUENTLY
ASKED
QUESTIONS

Why should I purchase a Lycoming Factory Overhaul Engine?

Lycoming designed and built your engine. Our parts and labor are genuine Lycoming. Any required product improvements will be incorporated during the overhaul process at no additional cost. As an industry leader, Lycoming overhauls typically contain more new genuine Lycoming parts than any other overhaul. Genuine factory overhauls are flown with confidence all over the world.

What benefits do our customers enjoy?

Lycoming customers enjoy the comfort of a hassle-free exchange program and predictable pricing. Lycoming demands the highest tolerances and standards, which can be found only at Lycoming. Unlike most overhauls, a Lycoming engine and all its parts are backed for a full year from the time you fire it up. Lycoming also backs your cylinders for an additional year.** This includes parts and labor, and it's honored at any authorized Lycoming engine distributor in the world.

Genuine Lycoming Factory Overhauls are flown with confidence all over the world.

***24 month warranty applies to all models except O-235 Series engines.*

What comes with a Lycoming Factory Overhaul Engine?

Lycoming Factory Overhaul Engines leave the factory in the exact configuration ordered by the airframe manufacturers. In addition to the mandatory replacement parts required per Lycoming Service Bulletin 240, every factory engine received at least the following new parts at no additional charge:

- Cylinder Kits including: new cylinder heads and barrels, pistons, rings, piston pin and plug, intake and exhaust valves, valve guides, seats and springs.)
- Valve lifter bodies or roller tappets where applicable and hydraulic units.
- Ignition harnesses and spark plugs.
- Diaphragm fuel pumps.
- All interior and exterior hardware and fasteners.

Those engines that were sold so-equipped will also include: starter, alternator, Slick Magneto or Bendix Dual Magneto.

Why does Lycoming offer an exchange?

Affordability. Lycoming Factory Overhaul Engines can be ordered with predictable competitive pricing, predictable delivery and precise scheduling of engine change, which minimizes aircraft downtime.

What do you mean by "No charge-backs?"

Return a complete like-model, active, operating core (as removed), and Lycoming will give you full core value. Lycoming does reserve the right to reject a return core that does not contain a genuine Lycoming crankcase or crankshaft.

Are Lycoming roller tappets offered in all Lycoming Factory Overhaul Engines?

Roller tappets were designed to replace the principle tappet of our 4 current tappet versions. This makes them available in the vast majority of our engine models. The balance of our engine models, which make up a small percentage of current production, will continue to use their current flat tappets.

Roller tappets were introduced into the Lycoming after-market engine product line in July 2005. This was a phased introduction as Lycoming gradually changes over all applicable engine models. Please contact your local distributor for more information.

What are the FAA standards for overhaul engines?

The FAA provides guidelines. The FAA approves or denies overhaul processes but does not define the process for best practices. The FAA also does not compare overhaul processes.

Are Lycoming's overhaul standards different than "Field" overhaul standards?

Lycoming is the OEM, designer and owner of these original designs and products. Lycoming has strict manufacturing service limits (minimum & maximum dimensions guarantee they fall into specific clearances). Lycoming has strict quality standards that help ensure dimensions and strict adherences to manual specifications.

How do "field" overhaul processes compare to Lycoming's overhaul processes?

There are many different "field" overhaul processes in the marketplace.

Field shop processes may have lower standards or processes for refurbishing parts. As an industry leader, Lycoming overhauls typically contain more new genuine Lycoming parts than any other overhaul.

Who utilizes Lycoming Factory Overhaul Engines?

Lycoming Factory Overhaul Engines are the preference of militaries, emergency services, fleet operators, commercial operators and valued individual customers worldwide.

What is the difference between a Lycoming Factory Overhaul and Lycoming Zero-Time Rebuilt?

Lycoming Factory Overhauls are built to (within) service limits and are time-continued engines in the logbook.

Lycoming Zero-Time Rebuilds must meet new drawing specifications. Since Lycoming designed and built your original engine, only Lycoming has the ability to rebuild this engine to “new-quality” specifications and tolerances. Any reused part used on a Zero-Time Rebuilt must also meet new part specifications.

Lycoming Factory Overhauls and Rebuilds also have differing warranties.

What is the difference between a Lycoming Factory Exchange Overhaul and a Lycoming Factory Customer Overhaul?

Lycoming Factory Exchange Overhauls are engines that are built to factory overhaul standards and are available to limit aircraft downtime. Lycoming Factory Customer Overhauls are engines that are factory overhauled using the customer’s engine that is sent back to the Lycoming facility. Customers can be confident that both variations of Lycoming Factory Overhauls are built to the exact same factory standards.

Do Lycoming Factory Overhauls use PMA parts?

No, PMA parts are not used in Lycoming overhauls. Lycoming uses parts that were designed, tested and manufactured to Lycoming’s strict standards during the overhaul process.

What warranties are provided for overhauled engines?

Overhauls: 1 year with a 2 year warranty on cylinders**
Rebuilt: 2 year with a (second year prorated) 2 year warranty on cylinders.**

***24 month warranty applies to all models except O-235 Series engines.*

Are Lycoming Factory Overhauls more expensive than field overhauls?

Lycoming factory overhauls are very competitively priced in the market, and you can count on: genuine parts and tighter tolerances/specifications, no charge-backs for core engines (this decreases your risk of unforeseen charges) and no refurbished parts.

Where are Lycoming distributors located?

Lycoming has a well established distribution network around the world. To find the distributor nearest you please visit the Lycoming web site at: www.lycoming.textron.com

What is a Lycoming Overhaul from Teledyne Continental Motors?

Plain and simple: It is not a Lycoming Factory Overhaul. There’s only one Lycoming factory. Unless your engine work is done at our plant in Williamsport, PA, it’s not genuine Lycoming factory work. Period.

We designed and built your Lycoming engine. Our parts and labor are genuine Lycoming. And no matter what anyone else claims, nobody but Lycoming can rebuild your Lycoming engine to “new-quality” specs and tolerances.

A genuine Lycoming Factory Overhaul is one thing you can absolutely count on. And the Lycoming factory is absolutely the only place you can get it.

Lycoming Cylinder Kits

What is a Lycoming Cylinder Kit?

A Lycoming cylinder kit is basically a replacement kit that contains a loaded cylinder/barrel assembly, piston, rings, piston pin, piston pin plug, seals and gaskets.

What engines models does Lycoming have cylinder kits for?

Lycoming currently sells cylinder kits for most Lycoming engines including: 235 Series, 320 Series, 390 Series, 435 Series, 480 Series, 540 Series, 580 Series, 541 Series, and 720 Series.

Lycoming makes engine model specific kits. Please be sure of your engine model when ordering Lycoming cylinder kits.

Does Lycoming have different types of cylinders?

Yes, Lycoming’s engines have either parallel valve cylinders or angle valve cylinders.

How can I tell the difference between a parallel valve cylinder versus an angle valve cylinder?

The general rule is that parallel valve cylinders are used on lower horsepower certified engines (such as the O-360-A4M), and the rocker box cover is usually square in shape.

Angle valve cylinders are usually used on higher horsepower certified engines (such as the IO-540-K1G5), and the rocker box cover has a less conventional shape.

Are there different types of parallel valve cylinders?

Most parallel valve engines with 5.125" cylinder bore diameters are the same design except for the 76-Series (O-320-H2AD). The third configuration would be an up intake/down exhaust type cylinder that is found in the Cessna 206 aircraft.

Lycoming makes engine model specific kits. Please be sure of your engine model when ordering Lycoming cylinder kits.

Are there different types of angle valve cylinders?

There are many different types of angle valve cylinders. The differing types of cylinders depend upon differing installation needs. Engines such as the IO-540-K, which are found in many aircraft, have the down intake/down exhaust type cylinder. Another example would be the TIO-540-J2B, which is found in the Piper Chieftain; this engine has the down intake/up exhaust type cylinder. The third configuration would be an up intake/down exhaust type cylinder that is found in the Cessna 206 aircraft.

Lycoming makes engine model specific kits. Please be sure of your engine model when ordering Lycoming cylinder kits.

Do Lycoming cylinders efficiently dissipate heat?

Unlike other smooth surface cylinders, Lycoming cylinders have a rough surface that actually cools better by the effects of turbulence. By disturbing the cooling air, Lycoming factory cylinders actually dissipate heat more efficiently.

Are Lycoming cylinders hard?

Some would have you believe that through hardening makes metal harder than Nitriding. This is incorrect. During manufacture, the nitride process creates a .025" thick armor of protection that outlives through hardening by a wide margin. All Lycoming cylinders are nitrided with choke bore except the O-235-C, which has straight bore cylinder walls.

Are Lycoming cylinders designed for high horsepower / high compression engines?

Lycoming is the only manufacturer in the market today who has designed, manufactured and certified cylinders for the entire line of Lycoming engines. Higher compression and turbo-charging requires cylinder barrels and heads that can withstand higher pressures and temperatures. With thousands of these engines flying millions of miles every year, Lycoming cylinders' track record speaks for itself.

What warranties are provided with Lycoming cylinders?

Lycoming offers a comprehensive 24 month (from the date of operation) warranty on all cylinders for engines other than the O-235 Series.

Why should I purchase Lycoming cylinders?

Lycoming designed and built the cylinders and incorporated them into the engine as an entire system. Using anything but factory-engineered parts could compromise the long-term efficiency of the entire engine.

With 75 plus years of experience, a very competitive price and after-sale support worldwide, why would you purchase anything else?

Where are Lycoming distributors located?

Lycoming has a well-established distribution network around the world. To find a distributor nearest you please visit the Lycoming web site at: www.lycoming.textron.com

What are the benefits of roller tappets?

The roller tappet eliminates the sliding motion between the cam and tappet, reducing wear and allowing the introduction of more advanced materials. Adding to its durability, the tappet's body and crankcase are designed to maintain proper alignment assuring the roller tappet cannot loosen or turn during engine use.

How do I get roller tappets in my engine?

Roller tappets were introduced into the Lycoming aftermarket engine product line in July 2005. This was a phased introduction as Lycoming gradually changes over all applicable engine models. Please contact your local distributor for more information.

Can I get rollers in my NEW aircraft?

Lycoming began installing roller tappets in OEM engines in June 2005. Ask your OEM dealer or salesperson if Lycoming roller tappets are in your aircraft of choice.

Are Lycoming roller tappets offered in every engine?

Roller tappets were designed to replace the principle tappet of our four current tappet versions. This makes them available in the vast majority of our engine models. The balance of our engine models, which make up a small percentage of current production, will continue to use their current flat tappets.

Will roller tappets extend my TBO?

The major factors limiting an engine's TBO are the wearing surfaces throughout the engine. While roller tappets make significant improvements in an engine's durability and reliability, they are only one factor in the formula to determine an engine's TBO and therefore will not extend TBO by themselves.

Will roller tappets affect my engines horsepower rating?

No, roller tappets were designed as an enhancement to current engine models. In order to maintain current engine certification, roller tappets were not allowed to increase engine horsepower or performance.

How do I know an engine has roller tappets?

Roller tappet-equipped engines are identified with an "E" suffix after the s/n dash number (Example – L-*****-48E). Furthermore, the ENPLs contain RT in front of the number (Example – ENPL-RT10052).

What parts are affected?

- Roller Tappet
- Crankcase
- Pushrod
- Shroudtube
- Shroudtube Seals
- Camshaft

What materials are the roller tappets made of?

Traditional flat tappets are made of cast iron. The new roller tappets are created from a high carbon, wear-resistant steel that has been proven very successful in power plant applications.

What mechanism is used to prevent improper rotation?

Unlike other roller tappet designs, Lycoming's utilizes a more robust system to "square the case" that entails precisely machining the crankcase to accept the tappet body. This design eliminates improper rotation of the roller tappet.

Are the hydraulics and/or oil mechanism different from traditional tappets systems?

No, the roller tappet system utilizes the same hydraulic and oil system as existing engines.

Can roller tappets be retrofitted into my current engine?

No, large populations of existing engines do not possess a crankcase that has sufficient material in the tappet body area to allow the required machining to accept the new roller tappet. There is currently no Lycoming approved process to retrofit roller tappets in the field.

However, if you purchase a Lycoming Factory Overhaul, engine roller tappets are standard equipment with no additional charge.

What makes Lycoming's roller tappets unique?

Lycoming's roller tappets were the result of many hours of world-class engineering research and design efforts. Lycoming's partnership with a world-renowned roller tappet supplier also provided technical expertise in manufacturing processes.

What type of testing did Lycoming do on the roller tappets?

Lycoming documented over 15,000 hours of test cell time during the FAA certification testing of the roller tappet design. These tests included dynamometer, motoring and extreme condition cold-start tests.

Lycoming was also the leader in introducing roller tappets to the market. In the 2003 Reno Air Races, Jon Sharp's and Mike Jone's engines were equipped with roller tappets.

What is the AEIO / IO-390 engine?

The AEIO / IO-390 is Lycoming's largest normally aspirated 4 cylinder engine producing 210 horsepower. This 387 cubic inch engine is horizontally opposed, fuel injected and equipped with a counterweighted crankshaft for optimal performance.

The AEIO engine comes equipped with an aerobatic kit that is required for power aerobatics.

What is the footprint of this engine versus the IO-360 (180hp)?

The AEIO / IO-390 is 19.4" x 34.3" x 31" and weighs approximately 308 lbs. In comparison, an IO-360-B Series engine is 20.3" x 33.4" x 32.8" and weighs approximately 275 lbs. Different accessories may affect weight and size estimates.

What is the footprint of this engine versus the IO-360 (200hp)?

The AEIO / IO-390 is 19.4" x 34.3" x 31" and weighs approximately 308 lbs. In comparison, an IO-360-A Series engine is 19.4" x 34.3" x 31" and weighs approximately 308 lbs. When comparing these two engine families, the 390 Series provides an additional 10 horsepower with no additional weight or size. Different accessories may affect weight and size estimates.

What is the footprint of this engine versus the IO-540 (235hp)?

The AEIO / IO-390 is 19.4" x 34.3" x 31" and weighs approximately 308 lbs. In comparison, an IO-540-W Series engine is also 19.4" x 33.4" x 38.9" and weighs approximately 400 lbs. Different accessories may affect weight and size estimates.

Where do the extra 30 cubic inches in an IO-390 come from versus an IO-360?

The additional 30 cubic inches of displacement are derived from a larger cylinder bore. Several years ago, Lycoming developed the 580 Series engine, which incorporated a new, larger displacement cylinder. The 390 Series engine is a 4 cylinder version of the larger 580 Series.

Why did Lycoming develop this engine family?

The AEIO / IO-390 was developed and introduced into the non-certified market as a kit engine. Aircraft owners and pilots are always on the search for more power with less weight. Lycoming was able to deliver more horsepower with the same weight as the similar 200 horsepower, IO-360 Engines.

The first engine, an AEIO-390, was built and flown in an Extra aircraft with impressive results. The additional horsepower and torque were evident when performing aerobatic maneuvers.

Is this engine certified? If not, what is the certification plan?

Today the AEIO / IO-390 is not a certified engine. Lycoming is working with several interested OEMs on certifying the 390 Series engine for their particular applications. As with any new engine, Lycoming is exploring all options to certify and to promote it.

How many of the engines in the 390-Family are currently flying?

There are a significant number of 390 engines flying or being installed on aircraft that are about to fly. The installed base of aircraft include Extra, Van's Aircraft, Glasair Aircraft, Lancair Aircraft and other aircraft designs worldwide.

What options come with this engine?

This engine is available with different accessory options. Fuel systems, alternators, starters and ignition systems can be customized to an individual's configuration.

Will this engine be offered with roller tappets?

Yes, as of July 2005 Lycoming will be phasing in roller tappet technology across all applicable engine families. The roller tappet eliminates the sliding motion between the cam and tappet, reducing wear and allowing the introduction of more advanced materials. Adding to its durability, the tappet's body is designed to maintain proper alignment that cannot loosen or turn during engine use. Bottom line, Lycoming's new roller tappet technology improves on the legendary durability of our engines and further enhances their reputation for reliability.

Where can I get this engine?

The 390 Series engine is currently available through Lycoming's Thunderbolt Engines at 570-327-7115. This product is also available through Kit Aircraft OEMs such as Glasair Aviation and Lancair Performance Aircraft. For further options please contact any one of Lycoming's Kit Engine Members. To learn whether the engine is compatible with a particular airframe, contact the airframe manufacturer. Lycoming has not certified this engine for use in any airframe.

Are there any STCs for this engine in the marketplace?

Currently there are no STCs in the marketplace that incorporate the Lycoming 390 Series engine. As was stated earlier, Lycoming is developing a certification plan and schedule.

What is the AEIO / IO-580 engine?

The AEIO/IO-580 is Lycoming's largest normally aspirated 6 cylinder engine producing 315-320 horsepower. This 583 cubic inch engine is horizontally opposed, fuel injected and equipped with a counterweighted crankshaft (the same rotating system used on the high horsepower 540 Series engine) for optimal performance.

The AEIO engine comes equipped with an aerobatic kit that is required for power aerobatics.

What is the footprint of this engine versus the IO-540 (260hp)?

The IO-580-B measures 21" x 34.3" x 39.3" and weighs approximately 444 lbs. In comparison, an IO-540-V Series engine measures 19.4" x 33.4" x 38.9" and weighs approximately 415 lbs. **Different accessories may affect weight and size estimates.**

What is the footprint of this engine versus the IO-540 (300hp)?

The IO-580-B measures 21" x 34.3" x 39.3" and weighs approximately 444 lbs. In comparison, an IO-540-K1H5 Series engine measures 19.6" x 34.3" x 39.3" and weighs approximately 437 lbs. When comparing these two engine families, the 580 Series provides an additional 15 horsepower with minimal additional weight. **Different accessories may affect weight and size estimates.**

What is the footprint of this engine versus the AEIO-540 (300hp)?

The AEIO-580 measures 24.5" x 34.3" x 40.2" and weighs approximately 480 lbs. In comparison, an AEIO-540-L1B5 Series engine also measures 24.5" x 34.3" x 40.2" and weighs approximately 480 lbs. When comparing these two engine families, the 580 Series provides an additional 20 horsepower with no additional weight or size. **Different accessories may affect weight and size estimates.**

Where do the extra 40 cubic inches in an IO-580 come from versus an IO-540?

The additional 40 cubic inches of displacement are derived from a larger cylinder bore. The cylinder bore diameter of the 580 Series engine is 5.319" versus 5.125" for the 540 Series engine cylinder bore.

Why did Lycoming develop this engine family?

The AEIO / IO-580 engine family was developed to satisfy customer demand for more horsepower in normally aspirated engines. Many market segments including aerobatic enthusiasts, business travelers and recreational aircraft users demand more power.

Is this engine certified? If not, what is the certification plan?

Lycoming currently offers the IO-580-B1A in a certified configuration. This engine is rated for 315 horsepower at 2700 RPM.

Lycoming is currently working on certifying several other variations on the 580, including the AEIO-580 for power aerobatics.

How many 580-Series engines are currently flying?

There are a significant number of 580 engines flying or being installed on aircraft that are about to fly. The installed base of aircraft includes Extra, CAP, Glasair Aircraft and other aircraft designs worldwide.

The 580 Engine has been flown extensively on the aerobatic circuit for over five seasons. Mike Jones has also won numerous air races including the Silver Sport Class at the 2005 Reno Air Races.

What options come with this engine?

The certified 580 configuration comes with the Lycoming Fuel Control System, unison ignition, choice of alternators and choice of starters.

In the non-certified configuration, the 580 engine is available with many customized options to increase performance.

Where can I get this engine?

The 580 Series engine is currently available through Lycoming's Thunderbolt Engines at 570-327-7115. This product is also available through kit aircraft OEMs such as Glasair Aviation and Lancair Performance Aircraft.

Will this engine be offered with roller tappets?

Yes, as of July 2005 Lycoming will be phasing in roller tappet technology across all applicable engine families. The roller tappet eliminates the sliding motion between the cam and tappet, reducing wear and allowing the introduction of more advanced materials. Adding to its durability, the tappet's body is designed to maintain proper alignment that cannot loosen or turn during engine use. Bottom line, Lycoming's new roller tappet technology improves on the legendary durability of our engines and further enhances their reputation for reliability.

Are there any STCs for this engine in the marketplace?

There are currently no existing STCs in the marketplace that incorporate the Lycoming 580 Series engine.

However, Lycoming is currently working with several STC providers that are close to having a certified application. Please visit the Lycoming web site at www.lycoming.textron.com for the most recent information on Lycoming and the 580 Engine.



