

Supplementary Installation Instructions



For All Sky-Tec High Performance Starters for Lycoming® Engines

1. Read Limited Warranty Statement (Black Box Below)

If you are not agreeable to the terms of the Limited Warranty, do not install the starter. By installing the starter, you are accepting the Limited Warranty coverage as specified.

2. Refer to ALL Documentation Available

This document supplements any additional documentation accompanying this starter or currently available from the Sky-Tec web site (www.skytecair.com) and is not necessarily a comprehensive source of all data related to the proper installation, use and care of this Sky-Tec product. Therefore, READ ALL MATERIALS ACCOMPANYING THIS PRODUCT AND ITS INTENDED APPLICATION (AIRCRAFT) before beginning installation.

3. Confirm Fit

Before initiating installation, confirm the starter you intend to install will fit in the aircraft. DRY FIT THE STARTER BY HAND – DO NOT USE LOCK WASHERS UNTIL YOU HAVE CONFIRMED THE STARTER WILL FIT THE AIRCRAFT PROPERLY. Once the starter has been mounted with lock washers, the starter can no longer be returned to the factory or the dealer as a “new” starter. Once mounted with lock washers, it is considered “used”. Factory warranty does NOT cover errors in installation, configuration or application. It is the responsibility of the person performing the installation to confirm ring gear tooth count, voltage, and starter shape fit the intended aircraft before installing the starter. Pertinent gear and voltage information is printed on the starter nameplate label.

4. Set Jumper Wire

Starter	Installation Type	Voltage	Jumper
LS, PM, HT, HT/ec*, or NL/ec*	Certified/Standard Keyswitch (Aircraft has separate firewall starter contactor/relay)	Any As Listed on Label	ON (Between “S” and “B+” Terminals)
LS, PM, HT, HT/ec* or NL/ec*	Experimental/Push-Button (Aircraft does not have separate firewall starter contactor/relay)	Any As Listed on Label	OFF (Remove)
NL (but not NL/ec*)	Certified/Standard	12V	ON
NL (but not NL/ec*)	Certified/Standard	24V	OFF

5. Mount Starter on Engine

Use the existing 5/16” bolt and nuts, or replace, as indicated by condition. Replace any and all washers with four (4) AN936-516 internal tooth “star” lock washers supplied or stock AN split-type lock washers. Do not use flat washers. Torque the bolt and nuts to 100 in. lbs. On some aircraft, minor modification of baffling may be required. Also, in some cases, the stock 5/16” bolt may need to be cut or replaced with a shorter one to ease installation.

6. Attach Power Cable

Use only the supplied M8 x 1.25 nut (this is a METRIC nut – do NOT use SAE hardware on the starter power post!). Use the internal tooth “star” lock washer supplied or split lock washer as desired. Attach the aircraft power lead to the power terminal of the starter with the star washer and nut. Torque the power input nut to 50 to 60 in. lbs. **Do not over-torque the power-input nut.** The screw is copper and can easily be stripped. Confirm engine/starter is well grounded.

Limited Warranty

Sky-Tec Partners, Ltd. (“Sky-Tec”) warrants this starter to be free from defects in materials and workmanship for a period of two years from the date of purchase. Sky-Tec warranty covers only repair or replacement of those components deemed to have failed for reasons Sky-Tec deems to be warrantable. Starters must be shipped to Sky-Tec per the instructions below at the customer’s cost for warranty evaluation. This warranty does not cover labor, inconvenience, transportation or loss of business due to any starter failure. Sky-Tec makes no warranty as to suitability of its products for the intended application.

If you suspect a starter to be defective, consult the Aircraft Starter System Troubleshooting Guide at <http://www.skytecair.com/Troubleshooting.htm>. To return a starter for service, simply obtain a return authorization electronically online at http://www.skytecair.com/Obtain_RA.htm or contact Sky-Tec Customer Service at (800) 476-7896 (9 AM - 5 PM Central Time). Starters returned to the factory via UPS with a valid Return Authorization number will usually be repaired or replaced the same day as received. Details regarding what may or may not be covered under this warranty may be found at <http://www.skytecair.com/Warranty.htm>.

Notes

PERFORMANCE

High-performance starters have significant differences from the original equipment starters made by Delco Remmy, Prestolite and ElectroSystems.

1. Sky-Tec starters utilize more modern technology. As a result, **they are much more reliable.**
2. No periodic maintenance is required. The recommended TBO is 2700 hours. There is no need to lubricate anything on your Sky-Tec starter.
3. Sky-Tec starters weigh much less than OEM starters. As such, there is much less mass in the starter available to extract heat from starter components, therefore it is essential not to overheat the starter by overcranking. Cranking limitations, use and care instructions are printed on the tag affixed to the starter power bolt.
4. The engine cranking speed may be up to twice as fast with this new, high performance starter. However, this speed will NOT affect impulse coupler effectiveness. This higher cranking speed may eliminate “Hot Start” cranking problems normally associated with fuel injected engines.

PRECAUTIONS

Engines with high-time magnetos and weak electrical systems should be thoroughly inspected prior to installing any lightweight, high-torque starter. Failure to do so may make your aircraft susceptible to poor starter performance or damage from kickbacks. Sky-Tec starters are NOT warranted against kickbacks, overheating due to over-cranking or stuck firewall solenoids, or misuse.

1. Inspect the Magneto system thoroughly.

Make sure that the magnetos are in compliance with all service bulletins. Make sure that the magneto impulse coupling is within service specifications. Kickbacks will break your starter (or for NL Models, shear a drive pin). Be sure your mags are RIGHT! Check the impulse couplers prior to attempting even a single start.

2. Inspect the voltage supply system.

If any Sky-Tec starter fails to turn the engine significantly faster than the OEM starter, immediately inspect the aircraft’s voltage supply system. Some models of lightweight starters, specifically 12V versions of PM, LS & HT models can require as much as 45% more output from the battery – or draw as many as 300 Amps during initial cranking. While NL models typically draw less current than OEM heavyweight starters and require fewer electrical system improvements, when using 12V versions of PM, LS & HT models, it may be necessary to replace aluminum wiring. Many Piper airplanes were built using aluminum wire. It is difficult, *though not impossible*, to obtain connections capable of carrying the currents for high-performance starters with aluminum wiring. It may also be necessary to replace undersized wire. Some aircraft were produced with copper wire that is too small to provide adequate cranking current. See http://www.skytecair.com/Wiring_Experimental.pdf for wiring resources.

3. Troubleshoot the entire voltage system

ALL Sky-Tec starters are tested to verify necessary power output before it leaves the factory. If a starter does not spin quickly or seems weak, please follow the Sky-Tec Starter System Troubleshooting Guide (www.skytecair.com/troubleshooting.htm). Do NOT return a “weak” starter to Sky-Tec without first completing the Troubleshooting Guide.

Weight and Balance Calculation

	MODEL		
	NL or NL/ec*	LS/PM	HT or HT/ec*
Weight:	9.4 lbs	7.8 lbs	8.5 lbs
Fore-Aft CG:	Half the distance between the front and rear starter mounting holes (starter datum)		