CANADIAN AERO
MANUFACTURING

HELPFUL HINTS FOR A SUCCESSFUL CONTINENTAL STARTER ADAPTER INSTALLATION
(CLASSIC / ORIGINAL STYLE ADAPTER)

Your starter motor must be overhauled / serviced before you reinstall it onto a newly overhauled starter adapter. Failure to do so is the most common cause of starter adapter failure and **WILL VOID ANY AND ALL WARRANTY CONSIDERATION**. Turn this page over to see just how bad such a failure will be. The cost to fix such a failure will exceed $2,000.00!
Proper release of the internal starter adapter clutch spring is dependent on the clutch spring being able to turn the starter motor backwards after engine start up. The starter adapter ***will*** fail catastrophically on the first start if the clutch spring is unable to release. If requested, most overhaul facilities will run / break-in you're overhauled / freshly serviced starter motor for an extended period of time, at ***50% of normal voltage***, to ensure that the starter motor turns as freely as is absolutely possible.
Before reinstalling the starter motor, you should personally verify that it will turn freely, both ways, using only your fingers. TCM's "energizer service manual" mandates "less than 5 inch pounds of residual torque".
As of the revision date of this document, we recommend that you do not install any light weight, geared, permanent magnet starter motor onto this starter adapter. For further information on new improved starter motors that may become available after this date, please call us at 800- 565- 4268 (705- 326- 1368 - out of USA)
All ignition systems require periodic servicing, as per the OEM's recommendations. Worn impulse couplings or a faulty/miswired "shower of sparks" system are common causes of starter adapter failure. Be sure to check and re-check that the ignition timing is set to the manufacture's specifications. Engine "kick back" on start-up will seriously damage the starter adapter.
A sticking starter solenoid or faulty starter switch will severely damage / destroy both the starter motor and the starter adapter if the starter motor continues to be energized after start up. Always replace this solenoid / switch if there is any indication of starter motor damage or catastrophic starter adapter failure.
We strongly recommend that the battery be tested and charged to full capacity to ensure proper cranking speed. This allows the magnetos on a continental engine to retard the timing from 21 degrees before top dead center to TDC or later for start up.
Before beginning the new starter adapter installation, inspect the crankshaft gear and the needle bearing / bushing into which the new starter adapter will be installed to determine that both are airworthy / serviceable.

******Before proceeding to the next step, tie the aircraft down, chock the wheels and verify that the fuel and magnetos are turned off and the throttle is pulled to idle / mixture is pulled into full lean/ cut-off position .Remain clear of the propeller arc and treat it as if the engine could start at any moment!***

Ensure pulley nut, if equipped, is torqued fully as per TCM overhaul manual before any of the following tests are done.

After the starter adapter is installed **but before** installing the starter motor, using a large screwdriver, wind the starter adapter counter clockwise until it begins to turn the prop. Remove the screwdriver and verify that the starter adapter unwinds easily several turns. ***Now, the most important step***, **using extreme caution**, turn the prop forward and back slightly to verify that the starter adapter has indeed fully released. Do this several times!
After installing the freshly serviced / overhauled starter motor, crank the engine over several times, but **do not** start the engine.
Be sure the magnetos are turned off, using extreme caution, turn the prop slightly by hand to verify that the starter adapter clutch spring was able to release, it should feel the same as it did before you installed the starter motor. If there is any doubt at all that the starter adapter has fully released – call us at 800 565 4268 or 705 326 1368.
Repeat the crank and test procedure at least 3 times before starting the engine. If all is OK, then start and run the engine for 30 seconds or less, shut it down, turn of the magnetos and repeat the above test, **using extreme caution.** If all is OK, you are ready for a test flight.
After flying the aircraft, again turn the prop slightly by hand to verify that the starter adapter clutch spring was able to release; it should feel the same as it did before you installed the starter motor. Always use extreme caution when turning the prop by hand.
Refer to the precautions outlined above. Tie it down; chock it, fuel off, magnetos **off**, throttle at idle, mixture lean / idle cut-off. ***Remain clear of the propeller arc and treat it as if the engine could start at any moment! If there is any doubt at all that the starter adapter has fully released or if you have any questions, do not hesitate to call us at 800 565 4268 or 705 326 1368 or e-mail.

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STARTER NOT OVERHAULED / CLUTCH SPRING FAILED TO RELEASE



STARTER ENGAGED / STUCK SOLENOID