

### Service Instruction

Thursday, May 03, 2007

SI07-01 ST2

#### TITLE

SKY-TEC ST2 MODEL STARTERS SHEAR PIN REPLACEMENT

#### EFFECTIVITY

Sky-Tec C12ST2 and C12ST2/S starters manufactured *or serviced* after 4/9/2007

#### OVERVIEW

The Sky-Tec C12ST2 series starters produced after 4/15/07 are protected from damage caused by engine kick-back. The protection mechanism is shear pin holding the transmission output gear to the transmission output shaft. In the case of a kick-back, the pin will shear.

#### PROCEDURE

##### 1. Removing the Starter:

- Remove the power cable nut with a 13mm wrench and remove power cable.
- Remove switch wire to aircraft (if installed) by removing nut with a 7mm wrench.
- Remove the top mounting bolts and the mounting nuts.
- Remove the starter from the engine, taking care to not tear the gasket.

##### 2. Removing the Pin:

- Remove the motor power lead nut with a 13mm wrench and remove the power lead as shown in Photos 1-3.



Photo 1

Photo 2

Photo 3

- Unscrew the two motor through-bolts with an 8mm wrench and slip them back about 1" as shown in Photos 4 and 5.

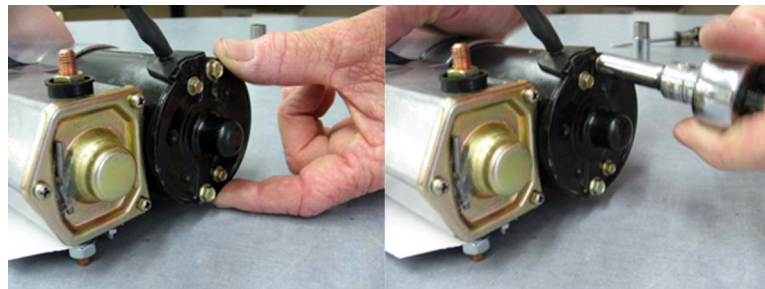


Photo 4

Photo 5

- With the end of the starter that attaches to the engine pointed up (Photo 6), wiggle the motor off. Be sure not to slip the starter motor armature (visible in the motor assembly in Photo & ) out of the motor case. Also be sure the 1/4" ball bearing shown in Photo 14 does not fall out from its location within the brass bushing at the base of the transmission assembly.



Photo 6

Photo 7

- Using a screwdriver, pry up gently on the flat sides of the transmission case and remove the transmission as shown in Photos 8 and 9.

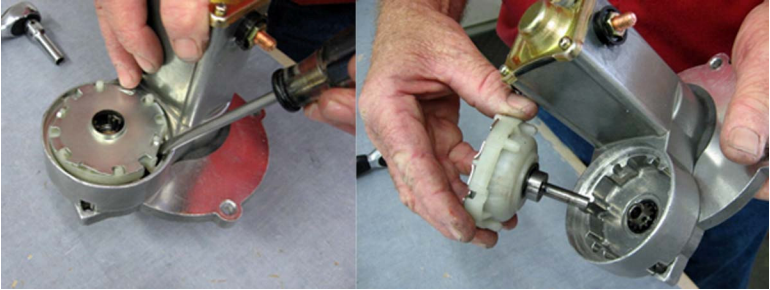


Photo 8

Photo 9

- Observe the transmission output shaft has a gear held by a shear pin. If the pin is sheared, the gear may remain within the solenoid mount assembly (as in Photo 9) and must be recovered using a small flat bladed screwdriver or similar recovery method. If the gear remains on the shaft, it should be slipped off of the transmission output shaft (Photo 10).



Photo 10

Photo 11

- Using a 1/8" punch, tap the remains of the pin out of the shaft and gear (Photo11).

### 3. Installing New Pin:

- Slip the gear back onto the shaft and, using the 1/8" punch to align the holes, tap the new pin through the gear and shaft with a larger punch as shown in Photos 12, 13, and 15.



Photo 12



Photo 13

### REASSEMBLY

Reassemble the starter by reversing the disassembly process. Ensure the 1/4" ball bearing shown in Photo 14 is located in the bottom of the brass bushing within the transmission gear assembly (Photo 14). Torque the motor through-bolts and the motor power lead nut to 60 inch/pounds.



Photo 14



Photo 15

### REINSTALLATION

Reinstall the starter on the aircraft, replacing the gasket if necessary.

### QUESTIONS AND COMMENTS

Contact Rich Chiappe at Sky-Tec. 800-476-7896 or richc@skytecair.com.