

ECi Cylinder AD Information

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Well here it is. The long discussed ECi cylinder AD note hit like a bomb at the end of last week and affects as many as 42,000 cylinders.

AD2016-16-12 becomes effective Sept. 15, 2016 and calls for simple removal from service the specified model/serial number cylinders base on a time-in-service, graduated replacement schedule of specific cylinders produced by the now closed ECi (Danbury Holdings Inc.) between 2002 and mid 2009.

The FAA addressed the multiple responses to the two previous Notice of Proposed Rule Making (NPRM) comment periods dating back to mid 2013 with a rather curt “*we disagree*” to almost all of the offered comments and forged ahead with only minor changes to the original drafted AD.

Lets look at what needs to be done.

AFFECTED ENGINES:

Any Twin Cessna models with IO-520, TSIO-520, IO-550 engines could be affected.

NOTE: The GTSIO-520, and standard IO-470 engines are not affected.

Some IO-470 engines modified with the installation of the –520 cylinders can be affected but these were never STC’d for Twin Cessna’s.

The AD ONLY affects the installed, specific ECi cylinders. This may be all or only a few cylinders installed on any one engine.

On the Twin Cessna Forum there seems to be some confusion that these would only be cylinders that were installed as field installed replacements. NOT SO. Complete engines (especially from RAM Aircraft) could have been delivered with all the cylinders affected, having had new ECi units installed as new.

However if the engine was a Continental “remanufactured” or “new” engine and has not had any replacement cylinders, it would NOT have any of the affected cylinders installed.

IDENTIFYING AFFECTED CYLINDERS:

A logbook review may work but also may not be definitive enough to identify randomly installed replacement units or specific serial numbers. In many cases direct identification would need to be done.

Some of the affected cylinders manufactured after January 1, 2009 will have the part number on the lower flange up near the engine case (Figure 1) but these numbers are never visible on an installed engine.



(Figure 1)

The most certain way to identify the affected cylinders is to remove the rocker box cover and look for the cylinder casting number of “AEC65385” (Figure 2 - next page)



(Figure 2)

SERIAL NUMBER:

This specifically addresses cylinders in a group from serial #1 through s/n 61176. The last produced affected serial number was in June of 2009.

Early generation affected cylinders had the serial number stamped on the intake port on the side of the cylinder (Figure 3 - next page) These numbers are impossible to see when the cylinder is installed.



(Figure 3)

On Jan 1, 2009 ECI started to stamp the serial number on the upper flange of the cylinder just behind the rocker box. (Figure 4 - below) This arrangement is very easy to see and identify the serial numbers.



(Figure 4)

Tip!

If the cylinder has the casting number of “AEC65385” and there is no serial number evident on the upper flange, there is no use in investigating any further in that the cylinder is definitely one of the affected ones.

If the cylinder has the casting number of “AEC65385” and the serial number is on the upper flange where you can see it, and if that number is 61176 or lower, then the AD note applies. If the upper flange serial number is higher than 61176, the AD note does not apply.

TIME IN SERVICE:

After determination that the cylinder is an affected unit then you must determine how long it had been in service as of Sept 16, 2016.

VIP Note!

To help with this I would suggest that everyone make a notation in the aircraft logbook (owner can do this) regarding the total time, or at least the Hour Meter time, on the aircraft as of Friday Sep. 16, 2016. Even if the AD is not formally addressed by a mechanic for several months, say at the annual, an accurate time can be established from the effective date.

REPLACEMENT SCHEDULE:

Par e5 (iv)

If the cylinder has been installed as a previously operated cylinder on this or any other engine and been overhauled and reinstalled it must be removed from service within 80 hr. after 9/15/2016 no matter how many or few hours on it.

Par e5 (i)

If the cylinder was installed “new” and has less than 680 hr. at 9/16/2016 then it can continue to operate until it reaches 1000 hr. (no calendar time applies)

Par e5 (ii)

If the cylinder was installed “new” and has more than 680 hr. of operating time but less than 1000 hr. operating time it must be removed within 320 operating hours after 9/16/2016 but can not exceed 1160 hours time in service.

Par e5 (iii)

If the cylinder has more than 1000 hr. at 9/16/2016 it must then be removed within 160 hr. of operation after 9/16/2016.

INSTALLATION LABOR TIME:

The FAA analysis used a time to remove and replace all six cylinders as 32 hours (5.33 hr. each), which is just wishful thinking. While an IO520 in a 310R may take 6 to 6.5 per cylinder, a tightly baffled 414A with multi-port EGT and CHT probes will easily take 7.5 to 8 hours. Plan on fixing a couple of temp probes and let's not even talk about what happens with multiple cylinder pre-heaters installed.

REMOVED CYLINDERS (Par (f))

If an affected cylinder is removed for any reason, even prior to it's time limit, it **cannot** be overhauled, repaired, or reused in any manner.

IN CLOSING:

My estimation is that there will be lots of cylinder shortages over the next couple of years and already stretched operating budgets are going to be stretched further by mandated cylinder changes.

I had voiced my concerns and displeasure with this AD a couple of times in the past during each NPRM cycle and it seems the FAA has finally answered all of our concerns, recommendations and comments with two simple words, **“we disagree”!**

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